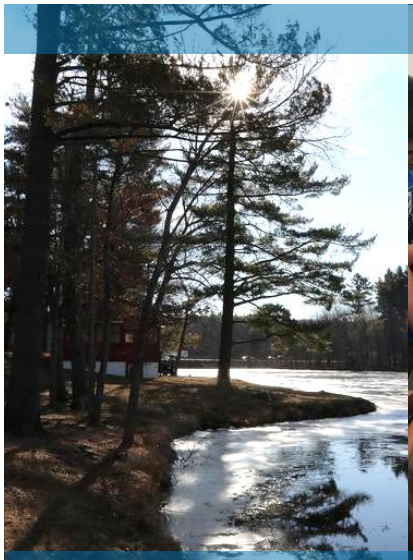

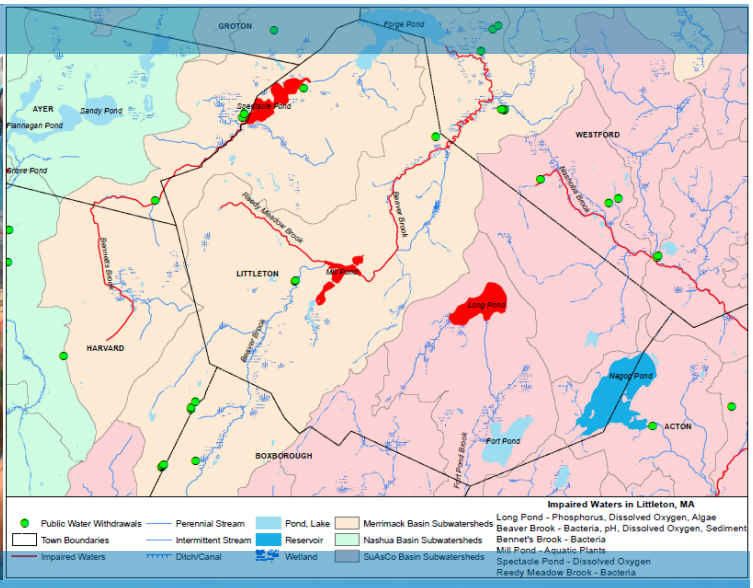

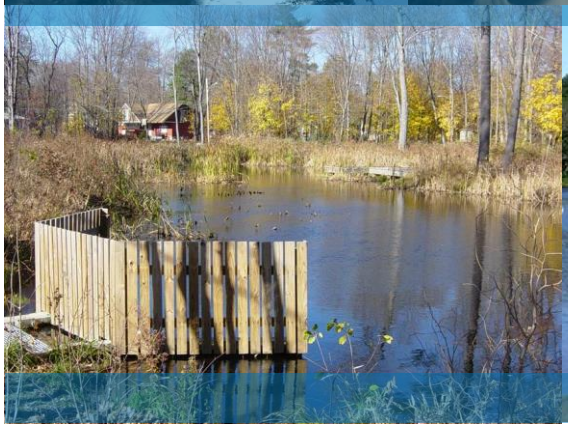

Tighe&Bond

Stormwater Management Plan

Prepared For:

Town of Littleton

May 2019

Updated September 2020

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Section 1
Introduction

Littleton is located in Middlesex County, approximately 30 miles northwest of Boston. It is abutted by the Towns of Westford, Acton, Boxborough, Harvard, Ayer, and Groton. There are approximately 0.9 square miles of surface water within its 17.6 square mile area.

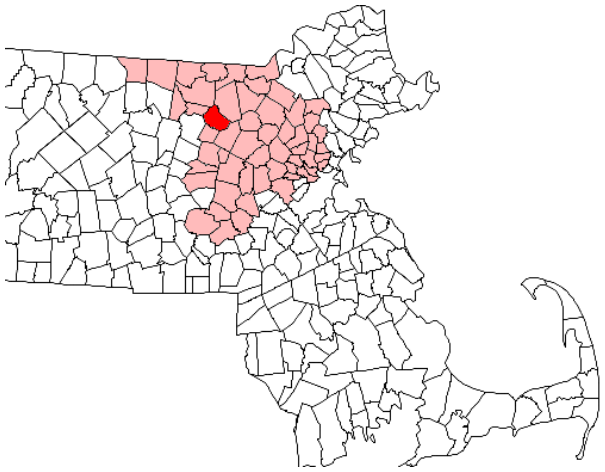

Figure 1-1 Location of Littleton, Massachusetts

According to the 2010 United States (U.S.) Census, Littleton is home to approximately 9,000 residents in almost 3,300 households.

Protecting the quality of Littleton's water resources, including lakes, ponds, rivers, and groundwater supplies, is a priority for the Town of Littleton. Pollutants from stormwater runoff are a contributing factor to the impairment of Littleton's waterbodies, including bacterial contamination, high nutrient levels, and low dissolved oxygen levels. The Town has developed stormwater policy initiatives, provided education to its businesses and citizens, publicly discussed the issues related to stormwater runoff, and offered many opportunities for residents and businesses to pitch in with clean-up efforts.

1.1 Purpose of this Plan

In an ongoing effort to minimize stormwater impacts within Littleton, the Town has developed this Stormwater Management Plan (SWMP). The SWMP is required by the U.S. Environmental Protection Agency's (EPA's) National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts ("Small MS4 General Permit"). The SWMP describes and details the activities and measures that will be implemented by Littleton to meet the terms and conditions of the permit.

The SWMP will be updated during the permit term as the Town's activities are modified, changed, or updated to meet permit conditions. Other requirements of the Small MS4 General Permit, such as a Notice of Intent (NOI), Authorization to Discharge letter, and documentation showing Endangered Species Act and Historic Properties eligibility criteria, have been certified and are located in the Appendices of this Plan.

1.2 Regulatory Requirements

1.2.1 Overview of EPA's NPDES MS4 Program

Through the NPDES program, the EPA nationally regulates the discharge of stormwater runoff that is transported into waters of the U.S. EPA's MS4 stormwater program was enacted in two phases:

- Phase I, issued in 1990, requires *medium* and *large* cities or certain counties with populations of 100,000 or more to obtain NPDES permit coverage for their stormwater discharges.
- Phase II, issued in 1999, requires regulated *small* MS4s in urbanized areas, as well as small MS4s outside the urbanized areas that are designated by the permitting authority, to obtain NPDES permit coverage for their stormwater discharges.

A **municipal separate storm sewer system (MS4)** is a conveyance or system of conveyances that is:

- owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.,
- designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches),
- not a combined sewer, and
- not part of a sewage treatment plant, or publicly owned treatment works (POTW).

In Massachusetts, the EPA Region 1 and the Massachusetts Department of Environmental Protection (MassDEP) jointly administer the municipal stormwater program. EPA and MassDEP originally authorized Littleton to discharge stormwater in 2003 under a *NPDES General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems*, known as the "2003 General Permit." Under this permit, the Town has developed and implemented a Stormwater Management Program to reduce the contamination of stormwater runoff.

The 2003 General Permit expired in May 2008, but remained in full force and effect until a replacement permit was issued on April 13, 2016. The reissued NPDES *General Permit for Stormwater Discharges from Small MS4 in Massachusetts* substantially increases stormwater management requirements and mandates specific timelines for compliance. On June 30, 2017, an EPA stay delayed the effective date of the General Permit until July 1, 2018. The MassDEP also adopted this delayed effective date.

This SWMP was developed to be consistent with the requirements of the 2016 General Permit for Massachusetts. Once implemented, the SWMP described herein will satisfy the requirements for compliance under the 2016 General Permit.

The reissued General Permit is intended to be more prescriptive than the 2003 General Permit, and to build upon the regulations already in place. A few of the major differences for each minimum control measure (MCM) are summarized in the following points:

- **Public Education and Outreach**: More specific messages required and prescriptive deadlines compared to the 2003 General Permit.
- **Public Involvement and Participation**: No substantial change from the 2003 General Permit.

- **Illicit Discharge Detection and Elimination (IDDE) Program**: Complete drainage system mapping, building on outfall mapping developed under the 2003 General Permit. Add interconnections to the outfall inventory. Delineate catchment areas and prioritize catchment investigations. Perform dry weather screening and sampling of high priority and low priority MS4 interconnections and outfalls by the end of Year 3. Perform wet weather screening in the spring for the catchments that indicate the presence of one or more System Vulnerability Factors. Complete catchment investigations. For impaired waters without Total Maximum Daily Loads (TMDLs), implement a multi-step approach to address the discharges including BMPs, source identification, and an evaluation of retrofit feasibility.
- **Construction Site Stormwater Runoff Control**: If it does not already exist, add inspection and enforcement to the site plan review procedure.
- **Stormwater Management in New Development and Redevelopment**: For new development, retain the first 1 inch of runoff from all impervious surfaces on site, or provide pollutant removal with a BMP. For redevelopment, retain the first 0.80 inches of runoff from all impervious surfaces on site or provide pollutant removal with a BMP. Offsite mitigation may be used for redevelopment projects. Evaluate local code for consistency with smart growth principles and green infrastructure.
- **Good Housekeeping and Pollution Prevention**: Develop a program to repair and rehabilitate the MS4 infrastructure. Sweep/clean municipal streets once in the spring. Include all activities that occur at a municipal facility and potential pollutants associated with each activity in the stormwater pollution prevention plan (SWPPP) for the facility.

1.2.2 Littleton's Regulated Area

The Town of Littleton meets EPA's regulatory threshold for Phase II of the MS4 program, and therefore is required to be covered under a NPDES permit for its stormwater discharges from the MS4 in its Urbanized Area. The Town of Littleton is charged by the EPA with operating and maintaining its MS4, as well as taking steps to reduce pollution in stormwater runoff. Additional objectives of the program are to protect public health and safety, preserve environmental resources, and safeguard town character.

Urbanized Areas (also known as "regulated areas") are defined by the latest U.S. decennial census. An urbanized area encompasses a densely settled territory that consists of core census block groups or blocks that have a population of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile or are included to link outlying densely settled territory with a densely settled urban core.[1] According to EPA Region 1, the area covered by either the 2000 census or the 2010 census are regulated by EPA under the MS4 program.

The 2000 census was used to determine that approximately 9.5 square miles (54%) of Littleton was urbanized and therefore regulated under the 2003 General Permit. On March 26, 2012, the Census Bureau published the final listing of urbanized areas for the 2010

[1] U.S. EPA. *Fact Sheet: Draft General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts.* September 2014. For a complete definition of Urbanized Area see Federal Register, August 24, 2011. Vol. 76 No. 164 p. 53030. URL: http://www2.census.gov/geo/pdfs/reference/fedreg/fedregv76n164.pdf.

census, which increased Littleton's urbanized area by approximately 4 square miles (24%). In total, 78% of Littleton is considered an urbanized area, as illustrated by the red hatching in Figure 1-2[2]. The SWMP must be implemented within all regulated portions of Town at a minimum.

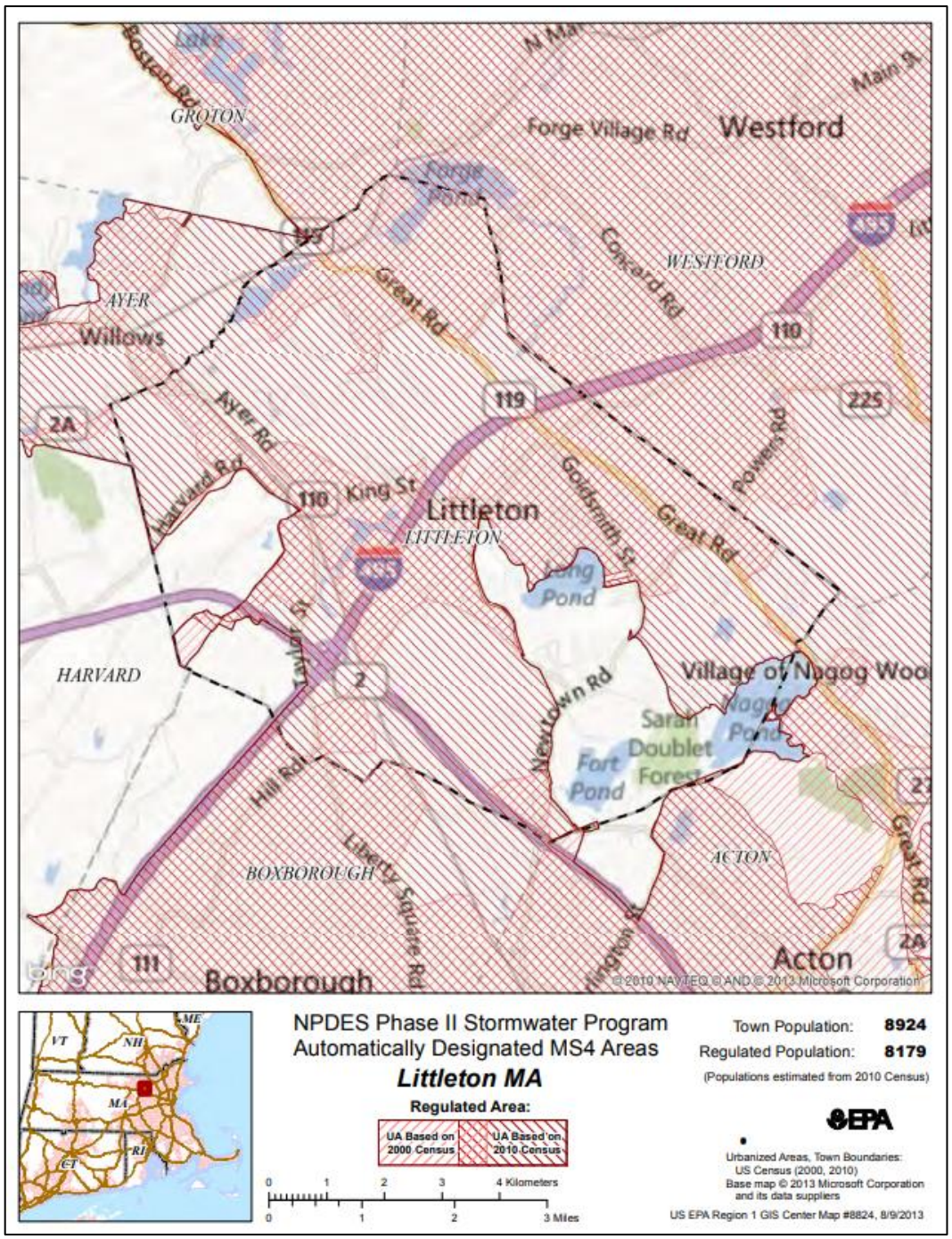

Figure 1-2 Littleton's Urbanized Area based on 2000 and 2010 census listings

[2] U.S. EPA, 2014.

1.3 Summary of Littleton's Stormwater Management Program under the 2003 General Permit

Littleton's stormwater management program is managed within the Highway Department. Currently, stormwater management tasks are carried out by various Town departments and volunteer boards, including the Town Administrator, Highway Department, Water Department, Board of Health, Conservation Commission, and the Planning Board.

The Town of Littleton has achieved all of the measurable goals for the BMPs selected in the 2003 Notice of Intent and those added in subsequent years to reflect unplanned stormwater activities by the Town. The following paragraphs include brief descriptions of current practices the Town undertakes as part of its Stormwater Management Program.

1.3.1 MCM 1 - Public Education and Outreach

The Town has been able to provide a multi-media public education program related to nonpoint source pollution and stormwater management targeted at multiple audiences. The Town has taken advantage of low-cost approaches to meet many of the requirements of this MCM. The Town has provided education on the stormwater management program, environmental awareness, and pollution prevention activities by sending brochures (provided by the Sudbury-Assabet-Concord (SuAsCo) Watershed Community Council) to Town residents and businesses, adding stormwater informational content to the Town's website, installing "no dumping" markers on catch basins, and holding annual educational workshops at the Littleton Electric Light and Water Department for 5th Grade classes. Stormwater management topics and educational materials are regularly posted on Town webpages and social media. The Town's Water Department publishes and distributes a "Watts & Drops" newsletter biannually, which includes information on proper hazardous materials disposal and stormwater management. The Town has an established stormwater media campaign, and a stormwater video (provided by the Northern Middlesex Stormwater Collaborative) is included on the Town's website.

1.3.2 MCM 2 – Public Involvement and Participation

Notice of public meetings where stormwater management will be discussed complies with State and Local public meeting notice requirements and there are opportunities for residents of all ages to participate in Littleton's stormwater program and overall environmental stewardship. Additional ongoing activities include the following:

- The Long Lake Neighborhood Association holds an annual clean-up event.
- The Clean Lakes Committee meets monthly to discuss strategies for stormwater management and lake restoration efforts. These meetings are open to the public.
- Public meetings are held by the Clean Lakes Committee, Planning Board, and through Town Meeting, at which stormwater management initiatives are discussed.
- The Town has previously posted stormwater information (provided by the SuAsCo Watershed Community Council) at kiosks in various recreational areas for the public.
- Local youth groups, including the Boy Scouts, have assisted with installing storm drain markers on catch basins to educate the public about illegal dumping into the storm drain and local waters.

- Pollution prevention programs are regularly offered, such as recycling used oil, proper disposal of household hazardous waste and used tires, and recycling.
- A mandatory recycling program is in place in Littleton, and the Town also participates in the North Central Regional Solid Waste Cooperative and is a member of the Devens Regional Household Hazardous Waste Recycling Facility, which allows Littleton residents and some businesses to dispose of hazardous waste.
- The Clean Lakes Committee runs a volunteer water quality monitoring program for the Town's lakes, as well as some streams.

The Town also established a stormwater webpage where residents and local businesses can review stormwater management activities occurring in Town, as well as a stormwater email address that can be used to contact the Town's stormwater Team.

1.3.3 MCM 3 – Illicit Discharge and Detection Elimination

Littleton has spent considerable effort on their IDDE Program. The Town has satisfied the mapping requirements of the 2003 General Permit and is well on the way to meeting the requirements in the 2016 General Permit. Littleton has completed mapping its MS4 system, identified priority areas for additional work, developed procedures for locating illicit discharges, and performed an outfall inventory and dry weather screening (sampled, mapped, and photographed) at all of their outfalls.

In 2016 Littleton adopted Chapter 38 of its General Bylaws, entitled *Stormwater*. Article I of Chapter 38 is *Illicit Connections and Discharges to Storm Drain System*, which regulates illicit discharges and illegal connections to the MS4. The Highway Department and Board of Health serve as the enforcement agencies for the bylaw.

Town staff have been trained, and are provided regular training opportunities, on illicit discharges and stormwater outfall investigations and sampling. Town staff look for the presence of illicit discharges during regular Highway operations activities.

1.3.4 MCM 4 – Construction Site Stormwater Runoff Control and MCM 5 – Post-Construction Stormwater Management

Littleton adopted Article II of Chapter 38 of the General Bylaws, *Stormwater Management and Erosion Control*, in 2016. Associated Stormwater Management and Erosion Control Regulations were promulgated by the Planning Board in 2017. The Bylaw and Regulations require that all new development and redevelopment projects disturbing more than one acre of land (other than those under the jurisdiction of the Conservation Commission) obtain a stormwater permit, meet performance standards, implement a stormwater management plan and erosion and sediment controls, and carry out post-construction operation and maintenance of best management practices (BMPs). The Bylaw is administered by the Planning Board. The Conservation Commission imposes equivalent stormwater management and erosion control requirements under the Massachusetts Wetlands Protection Act and the Littleton Wetlands Protection Bylaw.

The Planning Board also imposes stormwater management and erosion control requirements in various other types of permits and approvals under the Town of Littleton Zoning Bylaws and the Littleton Subdivision Regulations. The Town adopted a *Low Impact Design/Best Management Practices Manual* in 2007. Stormwater technical reviews for the Planning Board and the Conservation Commission are completed by a third party reviewer and include regular inspections and communication with the developer to ensure

adherence to local requirements during construction, including erosion and sediment controls.

The Town also implements post-construction BMPs maintenance based on the *Stormwater Management and Erosion Control* Bylaw, associated regulations, and the *Low Impact Design/Best Management Practices Manual*. These items highlight private BMP operation and maintenance procedures, including maintenance and inspection reporting.

1.3.5 MCM 6 – Pollution Prevention and Good Housekeeping

The Town implements good housekeeping standard operating procedures for numerous actions to reduce pollutant runoff from municipal operations, including catch basin cleaning, street sweeping, staff training, storing oil and hazardous materials properly, covering winter deicing materials, vehicle washing and maintenance, park and landscape maintenance, culvert and outfall cleaning/maintenance, and implementing an Oil Spill Prevention, Control, and Countermeasure (SPCC) Plan for the Littleton Highway and Littleton Electric, Light, and Water Department (LELWD) facility. Staff from the Highway and Water Departments attend Good Housekeeping and Pollution Prevention trainings held by the Northern Middlesex Stormwater Collaborative. Additionally, a Stormwater Pollution Prevention Plan has been developed for the same facility.

1.3.6 Additional Permit Requirements

Groundwater Recharge and Infiltration: Through implementation of the *Stormwater Management and Erosion Control* Bylaw and associated regulations, Zoning Bylaw, and *Low Impact Design/Best Management Practices Manual*, the Town evaluates site conditions relative to stormwater infiltration. Additionally, the Town of Littleton Zoning Bylaw includes infiltration design requirements in the Aquifer and Water Resource Districts which promote surface infiltration and require artificial recharge when lot impervious area exceeds specific percentages.

Public Drinking Water Supply Requirements: The Town of Littleton Zoning Bylaw includes Aquifer and Water Resource Districts, which ensures adequate drinking water quality and quantity, preserves and protects drinking water supplies, conserves natural resources, and prevents contamination of the environment. The Town considers water supply sources and protection areas a priority for stormwater management, particularly IDDE activities.

Record Keeping: The Town of Littleton maintains stormwater management program records that are organized by year and stored in both paper and digital format.

Water Quality Impaired Waters and Total Maximum Daily Load (TMDL) Allocations: Littleton's stormwater program is addressing many of the current requirements for discharges to impaired waterbodies. Through implementation of its current stormwater program, the Town is addressing the discharge of the pollutants of concern.

1.3.7 Building on 2003 BMPs

According to Section 1.10.b of the 2016 General Permit, Littleton must modify or update the BMPs being implemented under the 2003 General Permit to meet the terms and conditions of Section 2.3 of the 2016 General Permit. Appendix B includes a list of BMPs completed under the 2003 General Permit and BMPs included in the Notice of Intent and SWMP which comply with the 2016 General Permit. This list identifies how the intent of

each 2003 BMP is being met under the 2016 BMPs (further description of 2016 BMPs is included in Section 3 of this SWMP).

1.4 General Eligibility Determination

Section 1.2.1 of the 2016 General Permit authorizes the discharge of stormwater from small MS4s if the MS4 is determined to meet general eligibility criteria:

- *Small MS4 within the Commonwealth of Massachusetts*

  The Town of Littleton is located within Middlesex County, Massachusetts.

- *Not a large or medium MS4 as defined in 40 CFR 122.26(b)(4) or (7)*

  The population of Littleton is approximately 9,000 according to the 2010 Census, the MS4 is not within a designated County, and the Town has not been designated by the Director as part of a large or medium MS4.

- *Located either fully or partially within an urbanized area as determined by the 2010 Census or located in a geographic area designated by EPA as requiring a permit*

  Figure 1-2 shows the Regulated MS4 Areas for the Town of Littleton, based on 2000 and 2010 census listings. Littleton is mostly urbanized.

1.5 Special Eligibility Determinations

1.5.1 Endangered Species

On behalf of the Town of Littleton, Tighe & Bond completed the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C of the 2016 General Permit, and determined that the Town of Littleton meets **Criterion C**, where it has been determined that the Town's stormwater discharges and discharge related activities will have "no affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service. Refer to Appendix C of the SWMP for supporting information, including the U.S. Fish and Wildlife Service Official Species List for the project area and the Endangered Species Act Certification.

1.5.2 Historic Properties

On behalf of the Town of Littleton, Tighe & Bond completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of the 2016 General Permit, and determined that the Town of Littleton meets **Criterion A**, as the discharges do not have the potential to cause effects on historic properties. Please refer to Appendix D of the SWMP for supporting information, including a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures in the Town of Littleton's regulated area downloaded from the Massachusetts Cultural Resource Information System (MACRIS).

1.6 Authorization for Littleton to Discharge Stormwater

As required by the 2016 General Permit, a NOI was submitted within 90 days of the effective date of the permit (on September 28, 2018). A copy of the NOI is included in Appendix A. Documentation of the Town of Littleton's Authorization to Discharge by EPA, issued on March 5, 2019, is also provided in Appendix A. This written SWMP must be finalized within one year of the effective date of the permit.

Section 2
Watershed Resources

2.1 Watershed Inventory

The northwestern half of Littleton is located within the Merrimack River Watershed and the southeastern half of Town is located within the SuAsCo Watershed, as shown in Figure 2-1.

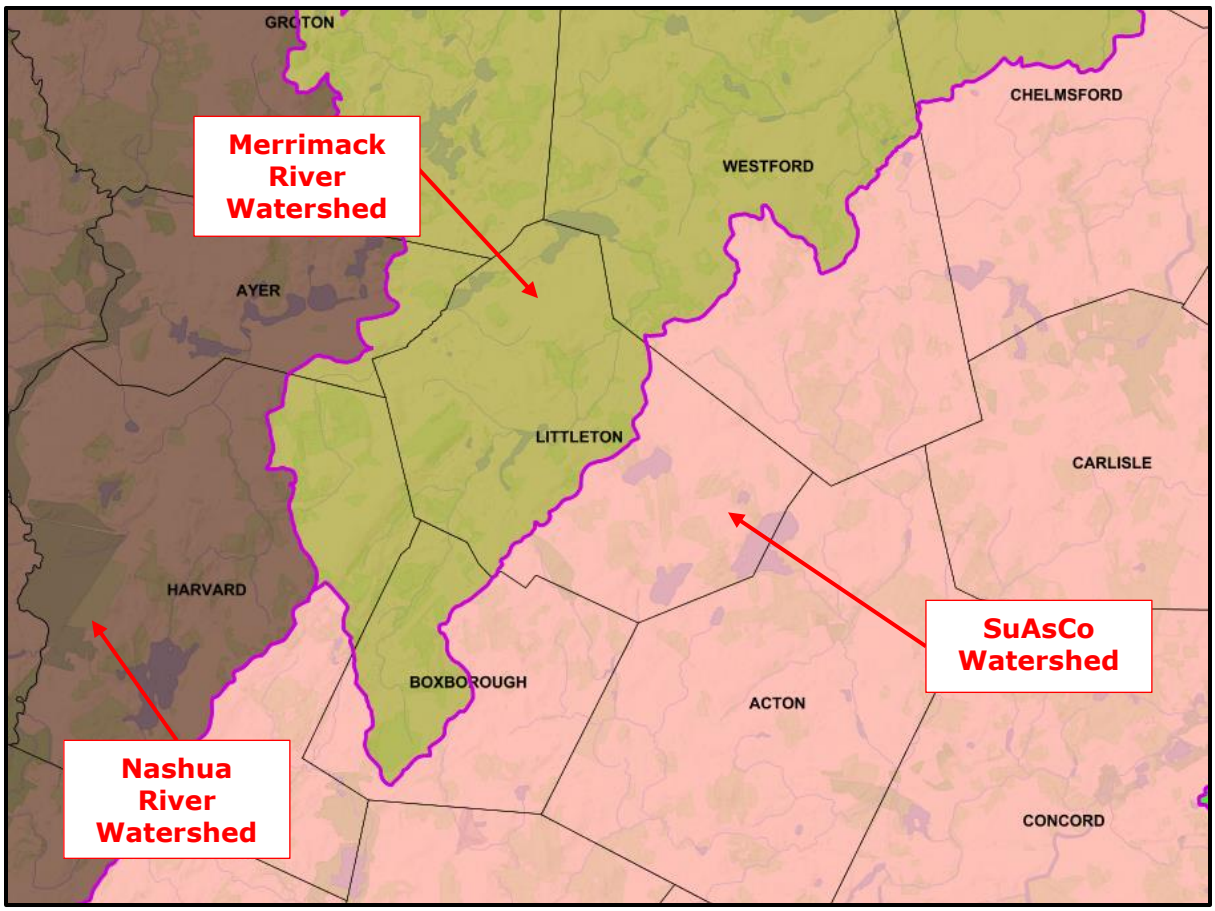

Figure 2-1 Major basins in Littleton

The Merrimack River Watershed occupies a majority of the northeastern portion of Massachusetts and extends to the Atlantic Ocean. It runs along the Massachusetts/New Hampshire border and abuts the Parker River, Ipswich River, Shawsheen River, SuAsCo, and Nashua River Watersheds.

The SuAsCo Watershed encompasses most of central Massachusetts and extends from the town of Hopkinton to the City of Lowell. The watershed is bordered by the Blackstone River and Nashua River Watersheds to the west, the Charles River and Shawsheen River Watersheds to the east, and the Merrimack River Watershed to the north.

Table 2-1 identifies the natural drainage basins within the Town of Littleton for waterbodies that are included in the 2014 Integrated List of Waters (see discussion in Section 2.2 for additional information). Note that there may be additional waterbodies within Town that are not included in the Integrated List. The NOI includes a more comprehensive list of the waterbodies that receive stormwater discharge from the MS4 and excludes waters where stormwater does not directly discharge.

Table 2-1
Natural Drainage Basins in Littleton

Major Basin	Main Stem Basin
Merrimack River Watershed	Beaver Brook (MA84B-05)
	Forge Pond (MA84015)
	Beaver Brook (MA84B-02)
	Bennetts Brook (MA84B-06)
	Mill Pond – North Basin (MA84038)
	Mill Pond – South Basin (MA84081)
	Spectacle Pond (MA84089)
	Unnamed Tributary (Reedy Meadow Brook) (MA84B-01)
SuAsCo Watershed	Fort Pond (MA82043)
	Fort Pond Brook (MA82B-13)
	Nagog Pond (MA82082)
	Long Pond (MA82072)

2.2 Water Quality

To meet the requirements of the Clean Water Act (CWA) Section 303(d), Massachusetts must assess and categorize surface waterbodies for attainment of designated uses (such as habitat for aquatic wildlife, aquatic wildlife consumption, and primary and secondary recreation), as well as identify any waterbodies that are not expected to meet surface water quality standards after implementation of controls. These sources are prioritized for establishing TMDLs for use in permit setting. Massachusetts meets the CWA reporting requirements through the development of an Integrated List of Waters, in which waters in the Commonwealth are categorized for attainment of designated uses. The Integrated List assigns each waterbody or waterway with one of five categories:

- **Category 1**: waters that are unimpaired and not threatened for all designated uses
- **Category 2**: waters that are unimpaired for some uses and not assessed for others
- **Category 3**: waters with insufficient information to make assessments for any uses
- **Category 4a**: waters with a completed TMDL
- **Category 4c**: waters that are impaired or threatened for one or more uses, but not by a pollutant and therefore not requiring the calculation of a TMDL
- **Category 5**: waters that are impaired or threatened for one or more uses and requiring a TMDL

Waterbodies classified as Category 4a (waterbodies with a TMDL) and Category 5 ("water quality limited" waterbodies) do not meet CWA designated uses, and stormwater pollutants of concern will need to be addressed per General Permit requirements. The 2016 General Permit includes additional requirements for waterbodies not meeting water quality standards, which are summarized in Section 4 of the SWMP.

Water quality within the Merrimack River Watershed and SuAsCo Watershed was assessed by the Massachusetts Department of Environmental Protection, Division of Watershed Management in 2004[3] and 2002[4], respectively. See the applicable MassDEP reports for further information.

2.2.1 2014 Integrated List of Waters

As of the date of this SWMP, Massachusetts waters categorized as impaired surface waters were identified in the Final Massachusetts Year 2014 Integrated List of Waters.[5] Waterbodies identified on Integrated List within Littleton are listed in Table 2-2.

Table 2-2
Summary of 2014 Integrated List of Waters - Status of Littleton's Receiving Waters

Category 5 Waters: waters requiring a TMDL							
Indicator contributing to impairment:	Long Pond MA82072	Beaver Brook MA84B-02	Bennetts Brook MA84B-06	Mill Pond North Basin MA84038	Mill Pond South Basin MA84081	Spectacle Pond MA84089	Unnamed Tributary (Reedy Meadow Brook) MA84B-01
Aquatic Plants (Macrophytes)				●	●		
Dissolved Oxygen	●	●				●	
Escherichia coli			●				
Excess Algal Growth	●						
Fecal Coliform		●					●
Low pH		●					
Non-Native Aquatic Plants*						●	
Total Phosphorus	●						
Total Suspended Solids (TSS)		●					

[3] MassDEP, Division of Watershed Management, "Merrimack River Watershed 2004 Water Quality Assessment Report". Accessed online at: https://www.mass.gov/files/documents/2016/08/nz/84wqar09.pdf.
[4] MassDEP, Division of Watershed Management, "SuAsCo Watershed 2001 Water Quality Assessment Report". Accessed online at: https://www.mass.gov/files/documents/2016/08/oi/82wqar1.pdf.
[5] MassDEP, Bureau of Water Resources "Final Massachusetts Year 2014 Integrated List of Waters". December 2015. Accessed online at: http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf.

Table 2-2
Summary of 2014 Integrated List of Waters - Status of Littleton's Receiving Waters

Category 4a Waters: TMDL is completed	
Indicator contributing to impairment:	Forge Pond MA84015
Mercury in Fish Tissue	●
Non-Native Aquatic Plants*	●

Category 3 Waters: no uses assessed			
Fort Pond MA82043	Fort Pond Brook MA82B-13	Nagog Pond MA82082	Beaver Brook MA84B-05

*TMDL not required (Non-pollutant)

2.2.2 Pollutants of Concern

Based on the 2014 Integrated List of Waters, the pollutants of concern for Littleton's impaired waters related to stormwater include bacteria, solids, total phosphorus, and pH and dissolved oxygen concentrations. More information about these pollutants and their potential sources are included in Appendix E.

2.2.3 Applicable TMDLs

Several waterbodies within the Town of Littleton are identified as Category 5 waters (impaired and requiring a TMDL), as described in Section 2.2.1. Currently, only one TMDL is established and final for Littleton, the *Assabet River Total Maximum Daily Load for Total Phosphorus* (2004).

A *Draft Pathogen TMDL Report for the Merrimack River Watershed* has been completed, but is not yet final. This TMDL would include Beaver Brook (MA84B-02) and Unnamed Tributary "Reedy Meadow Brook" (MA84B-01) within Littleton.

Section 3
BMPs to Address MCMs

This section includes descriptions of each BMP included in Littleton's NOI, an implementation plan, guidelines and resources, and lists of important documentation to best address the MCMs in the General Permit. In addition to the text below, Appendix F provides a detailed master checklist of key documentation required for each of the 6 MCMs.

3.1 MCM 1: Public Education and Outreach

Objective: *The permittee shall implement an education program that includes educational goals based on stormwater issues of significance within the MS4 area. The ultimate objective of a public education program is to increase knowledge and change behavior of the public so that pollutants in stormwater are reduced.*

This section of the SWMP describes how to comply with the Public Education and Outreach requirements in General Permit Section 2.3.2.

The Town will build upon the existing public education and outreach program to disseminate educational materials to target audiences via the internet, direct mailing, local cable channel, and/or public posting. The Town will coordinate public educational strategies with local watershed groups and take advantage of existing materials wherever possible. Section 3.1.5 includes free resources the Town can use to supplement the program.

3.1.1 MCM 1 BMPs from NOI

BMP ID	BMP Media/ Category	BMP Description	Targeted Audience	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
1A	Multi-media methods (including social media and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including proper pet waste management, proper use of pesticides and fertilizers). Educational topics will include but are not limited to those in Part 2.3.2.d.i	Residents	Water Department, Clean Lakes Committee	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)

BMP ID	BMP Media/ Category	BMP Description	Targeted Audience	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
1B	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including proper lawn maintenance, parking lot sweeping). Educational topics will include but are not limited to those in Part 2.3.2.d.ii	Businesses, Institutions, and Commercial Facilities	Water Department, Clean Lakes Committee	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)
1C	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including proper erosion and sedimentation control, permit requirements, and design standards). Educational topics will include but are not limited to those in Part 2.3.2.d.iii	Developers (Construction)	Conservation, Planning	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)
1D	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including pollution prevention, illicit discharges, information about the Multi-Sector General Permit). Educational topics will include but are not limited to those in Part 2.3.2.d.iv	Industrial Facilities	Water Department, Clean Lakes Committee	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)

3.1.2 MCM 1 Implementation Plan

BMP 1A Education and Outreach to Residents

Education and outreach goals for BMP 1A include:

- Increasing awareness of the impact of human activities on stormwater runoff and water quality;
- Changing residential behavior over time; and
- Reaching broad audiences with information that appeals to a diverse public.

Littleton will provide educational materials and general outreach to residents for stormwater management topics relevant to the Town. Topics may include:

- Information about Littleton's impaired waterbodies;
- Effects of outdoor activities such as lawn care on water quality (use of pesticides, herbicides, and fertilizers);
- Benefits of appropriate on-site infiltration of stormwater;
- Effects of automotive work and car washing on water quality;
- Proper disposal of swimming pool water; and
- Proper management of pet waste.

BMP 1B Education and Outreach to Businesses, Institutions, and Commercial Facilities

Education and outreach goals for BMP 1B include:

- Increasing awareness of business practices that may contribute to stormwater pollution;
- Changing behavior over time; and
- Improving compliance with local code.

Littleton will provide educational materials and general outreach to businesses, institutions, and commercial facilities within Town for stormwater management topics relevant to Littleton. Topics may include:

- Information about Littleton's impaired waterbodies;
- Proper lawn maintenance (use of pesticides, herbicides and fertilizer);
- Benefits of appropriate on-site infiltration of stormwater;
- Building maintenance (use of detergents);
- Minimizing the use of salt or other de-icing and anti-icing materials;
- Proper storage of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and contamination to groundwater);
- Proper storage of materials (emphasize pollution prevention);
- Proper management of waste materials and dumpsters (cover and pollution prevention);
- Proper management of parking lot surfaces (sweeping);
- Proper car care activities (washing of vehicles and maintenance); and
- Proper disposal of swimming pool water by entities such as motels, hotels, and health and country clubs (discharges must be dechlorinated and otherwise free from pollutants).

BMP 1C Education and Outreach to Developers

Education and outreach goals for BMP 1C include:

- Increasing awareness of the impact of construction activities on stormwater runoff and water quality;
- Changing developer behavior over time; and
- Improving compliance with local code.

Littleton will provide educational materials and general outreach to developers for stormwater management topics relevant to Littleton. Topics may include:

- Information about Littleton's impaired waterbodies;
- Proper sediment and erosion control management practices;
- Information about Low Impact Development (LID) principles and technologies; and
- Information about EPA's construction general permit (CGP).

BMP 1D Education and Outreach to Industrial Facilities

Education and outreach goals for BMP 1D include:

- Increasing awareness of industrial activities that may contribute to stormwater pollution;
- Changing behavior over time; and
- Improving compliance with local code.

Littleton will provide educational materials and general outreach to industrial facilities within Town for stormwater management topics relevant to Littleton. Topics may include:

- Information about Littleton's impaired waterbodies;
- Equipment inspection and maintenance;
- Proper storage of industrial materials (emphasize pollution prevention);
- Proper management and disposal of wastes;
- Proper management of dumpsters;
- Minimization of use of salt or other de-icing/anti-icing materials;
- Proper storage of salt or other de-icing/anti-icing materials (cover/prevent runoff to storm system and groundwater contamination);
- Benefits of appropriate on-site infiltration of stormwater runoff from areas with low exposure to industrial materials such as roofs or employee parking;
- Proper maintenance of parking lot surfaces (sweeping); and
- Requirements for coverage under EPA's Multi-Sector General Permit (MSGP).

3.1.3 MCM 1 Implementation Schedule

Outreach Method	PY1	PY2	PY3	PY4	PY5
Social media/website					
Signage and brochures					
Targeted outreach					
Targeted outreach					
Targeted outreach					
Targeted outreach					
Survey					

Residents
Businesses, Institutions, and Commercial Facilities
Developers
Industrial Facilities
All Audiences

3.1.4 Public Education and Outreach Goals and Progress

Per Section 2.3.2.e of the General Permit, the public education and outreach program shall provide focused messages for specific audiences and show evidence that progress toward the goals of the program have been achieved. The following methods will be used by the Town to evaluate the effectiveness of the educational messages and overall education program:

- Quantify the number of each audience that is reached during direct mailings.
- The Town may also track changes in behavior for specific issues addressed with education throughout the permit term (e.g., issues with erosion/sediment control during construction, pet waste bags found in catch basins, etc.).
- Consider a survey to determine whether there has been a change in knowledge or behavior over the permit term. A baseline survey would need to be developed and provided to target audiences in Permit Year 1 or 2, then again in Permit Year 5.

The above methods used to evaluate the effectiveness of the program, and any additional methods developed after the date of this SWMP, shall be tied to the defined goals of the program and the overall objective of **changes in behavior and knowledge**.

3.1.5 MCM 1 Guidelines and Resources

The following links include free or low-cost resources Littleton can use to supplement the Public Education program.

EPA Public Education
https://cfpub.epa.gov/npstbx/

EPA Stormwater Management Program Resources – Public Education
https://www.epa.gov/npdes-permits/stormwater-tools-new-england#peo

EPA Stormwater Education Toolkit (SET)
http://www.stormwater.ucf.edu/toolkit/

EPA National Menu of BMPs for Stormwater
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#edu

MassDEP Public Education
https://www.mass.gov/guides/stormwater-outreach-materials-to-help-towns-comply-with-the-ms4-permit

Developing an Effective Stormwater Education and Outreach Program for Your Community
http://www.urbanwaterslearningnetwork.org/wp-content/uploads/2016/04/Manual-Stormwater-Education-and-Outreach_2014.pdf

Greenscapes
http://greenscapes.org/services-resources/

Northern Middlesex Stormwater Collaborative
http://www.nmstormwater.org/resources-stormwater-collaborative

Urban Waters
http://www.nmstormwater.org/for-municipalities

Merrimack Valley Stormwater Collaborative
http://www.merrimackvalleystormwater.org/who-we-are/public-education/

OARS (information for the Assabet, Sudbury, and Concord Rivers)
http://www.oars3rivers.org/river

3.1.6 MCM 1 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 1. See Section 5 of this Plan for additional record keeping information.

- ☐ All educational materials provided to target audiences;
- ☐ Distribution lists for target audiences;
- ☐ Dates of distribution of educational materials;
- ☐ Annually track changes in social media subscription and use; and
- ☐ Note educational goals and opinion on effectiveness based on results tracked; modify education and outreach program if necessary.

3.2 MCM 2: Public Involvement and Participation

Objective: *The permittee shall provide opportunities to engage the public to participate in the review and implementation of the SWMP.*

This section of the SWMP describes how to comply with the Public Involvement and Participation requirements in General Permit Section 2.3.3.

3.2.1 MCM 2 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
2A	Public Review	SWMP review (Plan and reports available on web and at public meetings)	Board of Selectmen, Town Administrator	Annually provide the public with an opportunity to participate in the review and implementation of the SWMP	2018 (PY1)
2B	Public Participation	Provide opportunities for public involvement and participation in Littleton's stormwater program (including school field trips and clean up events). Specific activities, schedule, and lead departments are included in the SWMP.	Highway, Water Department	Ongoing compliance	2018 (PY1)

3.2.2 MCM 2 Implementation Plan

BMP 2A Stormwater Management Plan Public Review

Littleton shall provide the public with an opportunity to review this Stormwater Management Plan prior to finalizing it, and with other opportunities to participate in the Town's Stormwater Program on an annual basis.

While the Board of Selectmen and Town Administrator are the responsible parties for this BMP, multiple Town Departments can help aid in successful implementation, as public participation in stormwater management initiatives often crosses Departments.

The draft NOI was presented at separate Board of Selectmen and Conservation Commission public meetings on September 24, 2018 to solicit input from the general public. A general overview of the Town's stormwater program was also discussed at these

meetings. This SWMP will be posted on the Town's website and available to the public for the duration of the permit term.

BMP 2B Public Participation in Stormwater Management Program

Public involvement and participation goals for BMP 2B include:

- Increasing public involvement in and knowledge of Littleton's stormwater program; and
- Improving water quality through local clean up and waste collection events.

Littleton shall continue to provide notice for public meetings per Massachusetts General Law requirements, including meetings pertaining to the Stormwater Management Program.

The Town shall continue to provide annual opportunities for public participation in the Program. These opportunities may include, but are not limited to:

- Storm drain stenciling;
- Stormwater-related activities with school groups;
- Hazardous waste drop off day;
- Clean Lakes Committee meetings and activities; and/or
- Stream and street clean ups.

Appendix E includes a document with helpful tips for organizing and conducting volunteer clean-up events that Littleton may reference. The Town shall document all public participation activities in the Annual Reports, and documentation should seek to quantify results or impact to better evaluate the public involvement and participation program effectiveness.

3.2.3 MCM 2 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
2A Stormwater Management Plan Public Review	●	●	●	●	●
2B Public Participation in Stormwater Management Program	⟷	⟷	⟷	⟷	⟷

● = annual requirement

⟷ = ongoing requirement

3.2.4 MCM 2 Guidelines and Resources

The following links include free or low-cost resources Littleton can use to supplement the Public Involvement program.

EPA National Menu of BMPs for Stormwater
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#inv

EPA Evaluation of the Role of Public Outreach and Stakeholder Engagement in Stormwater Funding Decisions in New England: Lessons from Communities
https://www.epa.gov/sites/production/files/2015-09/documents/eval-sw-funding-new-england.pdf

Manchester Urban Ponds Restoration Program: Tips for Organizing and Conducting Volunteer Clean-up Events
Available in Appendix E of this SWMP

Massachusetts Open Meeting Law Guide
http://www.mass.gov/ago/docs/government/oml/oml-guide.pdf

3.2.5 MCM 2 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 2. See Section 5 of this Plan for additional record keeping information.

- ☐ Public meeting dates and topics when stormwater management-related topic is discussed; and
- ☐ Dates of public participation activities and quantification of participation (such as number of volunteers/participants, number of bags collected, etc.).

3.3 MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program

Objective: *The permittee shall implement an IDDE program to systematically find and eliminate sources of non-stormwater discharges to its municipal separate storm sewer system and implement procedures to prevent such discharges.*

This section of the SWMP describes how to comply with the Illicit Discharge Detection and Elimination Program requirements in General Permit Section 2.3.4.

3.3.1 MCM 3 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
3A	IDDE Bylaw	Complete. Continue to enforce and update if necessary.	Board of Health, Highway	Track illicit discharges identified and removed.	2018 (PY1)
3B	SSO Inventory	Develop SSO inventory in accordance with permit conditions	Highway	Complete within one (1) year of effective date of permit. Track # of SSOs identified and removed annually	2018 (PY1)
3C	Storm sewer system map	Improve map during IDDE Program implementation	Highway	Update map within two (2) years of effective date of permit and complete full system map 10 years after effective date of permit	2018 (PY1)
3D	Written IDDE program	Complete. Update written IDDE Plan as necessary	Highway	Complete within one (1) year of the effective date of permit and update as required	2018 (PY1)
3E-1	Assessment and Priority Ranking of Outfalls & Interconnections	Outfall/ Interconnection Inventory and Initial Ranking as part of BMP 3D. Complete.	Highway	Complete within one (1) year of the effective date of permit and update as necessary	2018 (PY1)
3E-2	Assessment and Priority Ranking of Outfalls & Interconnections	Dry Weather Outfall Screening & Sampling in accordance with IDDE Plan and permit conditions.	Highway	Complete three (3) years after effective date of permit. Track # of illicit discharges identified & volume removed. Summarize screening/sampling results.	2018 (PY1)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
3E-3	Assessment and Priority Ranking of Outfalls & Interconnections	Catchment Investigations according to IDDE Program and permit conditions	Highway	Complete 10 years after effective date of permit. Track # and percentage of MS4 catchments evaluated. Track # of illicit discharges identified & volume removed. Summarize screening/sampling results.	2019 (PY2)
3F	Employee Training	Train employees on IDDE implementation	Highway	Train annually. Track employees trained, training topic, date/ time, and materials presented.	2018 (PY1)

3.3.2 MCM 3 Implementation Plan

A written Illicit Discharge Detection and Elimination Plan was developed for the Town of Littleton, dated June 2017. Refer to this Plan for the complete IDDE program and requirements of MCM 3. This SWMP section presents a brief summary of the information presented in the IDDE Plan.

BMP 3A IDDE Bylaw

The IDDE program shall include adequate legal authority to prohibit, investigate, and eliminate illicit discharges and implement enforcement procedures and actions. Littleton has met this requirement by adopting a bylaw entitled *Illicit Connections and Discharges to Storm Drain System* in 2016. This bylaw prohibits illicit discharges to the Town's drainage system. The Highway Department and Board of Health serve as the enforcement agency for the bylaw.

BMP 3A is complete. See Section 4 of the IDDE Plan for additional information.

BMP 3B SSO Inventory

The Town must identify all known locations where sanitary sewer overflows (SSOs) have discharged to the municipal drainage system within the past five (5) years and create an inventory that includes the following information:

- Location, date, time, and volume of each occurrence;
- Whether the discharge entered surface water or the MS4;
- Description, indicating known or suspected cause(s); and
- Mitigation and corrective measures planned and completed.

This inventory must be kept up to date and appended to this SWMP. Each municipal Department can aid in the development and maintenance of the inventory by reporting instances of SSOs found during field work to the Highway Department.

BMP 3B is complete for Permit Year 1. The SSO inventory is available in the IDDE Plan. See Section 2.1 of the IDDE Plan for additional information.

BMP 3C Storm Sewer System Map

A comprehensive map of Littleton's drainage system has been developed, and the Town has met a substantial portion of the requirements of this BMP. Town staff should continue to update the map as necessary to reflect newly discovered information, corrections or modifications, improved connectivity, and progress made.

BMP 3C is ongoing. See Section 3 of the IDDE Plan for additional information.

BMP 3D Written IDDE Program

Littleton has implemented a Town-wide IDDE Plan, finalized in June 2017, which includes procedures and timelines developed in accordance with the 2016 General Permit. The Town should continue to update and modify the Plan on an as-needed basis.

BMP 3D is complete. See the IDDE Plan for additional information.

BMP 3E-1 Outfall/Interconnection Inventory and Initial Ranking

The Town has assessed and priority ranked each outfall within the MS4 in terms of their potential to have illicit discharges and SSOs, and the related public health significance.

BMP 3E-1 is complete. See Section 6 of the IDDE Plan for additional information.

BMP 3E-2 Dry Weather Screening and Sampling

Field investigations must be completed during dry weather conditions to confirm whether any Low or High Priority outfalls have dry weather flow, which may be indicative of illicit connections/discharges. The initial catchment delineation and priority ranking must be updated by the end of Permit Year 3 based on the data gathered in the field. All data gathered during implementation of this BMP must be reported annually.

BMP 3E-2 is ongoing. See Section 7.1 of the IDDE Plan for additional information.

BMP 3E-3 Catchment Investigations

Each catchment associated with an outfall or interconnection within the MS4 must be investigated based on identified System Vulnerability Factors (SVF, i.e., the likelihood that illicit discharges/connections exist) in that particular area. For all catchments, key junction manholes shall be opened and inspected for evidence of illicit connections during dry weather conditions. For catchments with one or more SVF, wet weather monitoring must be completed. The Town will identify the number of outfall catchments in the MS4 that have been evaluated using the catchment investigation procedure developed under BMP 3D. All data gathered during implementation of this BMP must be reported annually.

At the conclusion of field work for this BMP, the outfall/interconnection inventory should be updated and reprioritized for ongoing screening once every five years. See Sections 7.2 and 7.3 of the IDDE Plan for additional information.

BMP 3F Employee Training

Employees involved in the IDDE Program must be trained annually on the Program, including how to recognize illicit discharges and SSOs in accordance with the IDDE Plan.

See Section 9.2 of the IDDE Plan for additional information.

3.3.3 MCM 3 Implementation Schedule

EPA's implementation timeline for the IDDE Program is available in Appendix E.

BMP	PY1	PY2	PY3	PY4	PY5
3A IDDE Bylaw	✓				
3B SSO Inventory	✓	●	●	●	●
3C Storm Sewer System Map	◄	●	►		
3D Written IDDE Program	✓				
3E-1 Outfall/Interconnection Inventory and Initial Ranking	✓				
3E-2 Dry Weather Screening and Sampling	◄	►			
3E-3 Catchment Investigations		◄	►		
3F Employee Training	●	●	●	●	●

✓ = BMP complete

● = annual requirement or year due

◄► = ongoing requirement

3.3.4 MCM 3 Guidelines and Resources

The following links include free or low-cost resources Littleton can use to supplement the IDDE program. The Town-specific procedures in the IDDE Plan were developed using the IDDE Guidance Manual and New England Source Tracking Protocol linked below.

Center for Watershed Protection Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments
https://www3.epa.gov/npdes/pubs/idde_manualwithappendices.pdf

EPA Stormwater Management Program Resources – IDDE
https://www.epa.gov/npdes-permits/stormwater-tools-new-england#idde

EPA New England Bacterial Source Tracking Protocol
https://www3.epa.gov/region1/npdes/stormwater/ma/2014AppendixI.pdf

EPA National Menu of BMPs for Stormwater
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#ill

Littleton *Illicit Connections and Discharges to Storm Drain System* Bylaw
https://www.littletonma.org/sites/littletonma/files/uploads/5-2-16_atm_art_20_by-law_-_stormwater_illicit_connections_discharges_to_storm_drain_system.pdf

3.3.5 MCM 3 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 3. More information about IDDE reporting is located in Section 10 of the IDDE Plan. See Section 5 of this Plan for additional record keeping information.

- ☐ Log of phone calls and complaints received regarding suspected illicit connections and other storm drain issues, including dates and actions taken;
- ☐ SSO inventory (updated annually), including the number of illicit discharges/ connections identified and/or removed and the volume of sewage removed;
- ☐ Drainage system map;
- ☐ Data collected during dry and wet weather outfall/interconnection investigations, including the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening results, and results of all analyses (summarize on an annual basis and for the entire permit term);
- ☐ Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure;
- ☐ Presence or absence of System Vulnerability Factors for each catchment;
- ☐ Data collected during key junction manhole investigations;
- ☐ Inspection and maintenance records; and
- ☐ Frequency and type of employee training, including employees trained, training topic, date/time, and materials presented.

3.4 MCM 4: Construction Site Stormwater Runoff Control

Objective: *To minimize or eliminate erosion and maintain sediment on site so that it is not transported in stormwater and allowed to discharge to a water of the U.S. through the permittee's MS4.*

This section of the SWMP describes how to comply with the Construction Site Stormwater Runoff Control requirements in General Permit Section 2.3.5.

3.4.1 MCM 4 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
4A	Construction Bylaw and Regulations	Confirm that local bylaw and regulations comply with new MS4 provisions per section 2.3.5.	Planning Board	Review and modify if necessary within one (1) year of permit effective date	2018 (PY1)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
4B	Construction Policy and Procedures	Develop and implement written procedures for site inspections and enforcement procedures per section 2.3.5.	Planning Board	Review current procedures and modify if necessary within one (1) year of permit effective date	2018 (PY1)

3.4.2 MCM 4 Implementation Plan

Per the General Permit, Littleton must develop and implement the following items, which will be adopted as either Bylaw/regulation modifications or a new policy or procedure. Note that while Littleton can choose to implement these items Town-wide, they are only required for disturbances within the regulated area that are greater than or equal to one (1) acre or less than one (1) acre if that disturbance is part of a larger common plan of development or sale that would disturb one (1) or more acres.

- A regulatory mechanism that requires the use of sediment and erosion control practices at construction sites, as well as controls for other wastes on construction sites such as demolition debris, litter, and sanitary wastes;
- Written procedures for site inspections and enforcement of sediment and erosion control measures, including the responsible party for site inspections and enforcement authority, due within one (1) year of the effective date of the permit;
- Requirements for construction site operators performing land disturbance activities within the MS4 jurisdiction that result in stormwater discharges to the MS4 to implement a sediment and erosion control program that includes BMPs appropriate for the conditions at the construction site;
- Requirements for construction site operators within the MS4 jurisdiction to control wastes, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes; and
- Written procedures for site plan review and inspection and enforcement, due within one (1) year of the effective date of the permit.

<u>BMP 4A Construction Bylaw and Regulations</u>

The Town shall implement and enforce a program to reduce pollutants in stormwater runoff discharged to the municipal drainage system from construction activities, including use of sediment and erosion control practices, at sites greater than one acre. Littleton has met this requirement by adopting a bylaw entitled *Stormwater Management and Erosion Control i*n 2016. This bylaw provides guidance for site planning and stormwater runoff control during construction and post-construction to protect local water resources from discharges. The Planning Board serves as the enforcement agency for the bylaw and has adopted implementing regulations.

<u>BMP 4B Construction Policy and Procedures</u>

Littleton shall develop written procedures for site inspections and enforcement of sediment and erosion control measures. They will include procedures for tracking the number of site reviews, inspections, and enforcement actions.

3.4.3 MCM 4 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
4A Construction Bylaw and Regulations	●				
4B Construction Policy and Procedures	●				

● = year due

3.4.4 MCM 4 Guidelines and Resources

The following links include free or low-cost resources Littleton can use to supplement the Construction program.

EPA Construction General Permit SWPPP template, including inspection forms
https://www.epa.gov/npdes/epas-2017-construction-general-permit-cgp-and-related-documents

Massachusetts Stormwater Handbook
https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards

EPA Stormwater Management Program Resources – Construction Site Runoff Control
https://www.epa.gov/npdes-permits/stormwater-tools-new-england#csrc

EPA National Menu of BMPs for Stormwater
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr

Littleton *Stormwater Management and Erosion Control* Bylaw
https://www.littletonma.org/sites/littletonma/files/uploads/5-2-16_atm_art_21_by-law_-_stormwater_management_and_erosion_control_0.pdf

Littleton Planning Board *Stormwater Management and Erosion Control Regulations*
https://www.littletonma.org/sites/littletonma/files/uploads/littleton_stormwater_regulations_final_7-13-2017_0.pdf

Central Massachusetts Regional Stormwater Coalition SOP 5: Construction Site Inspection
http://www.centralmastormwater.org/Pages/crsc_toolbox/Construction%20Inspection%20SOP_FINAL.pdf

Central Massachusetts Regional Stormwater Coalition SOP 6: Erosion and Sedimentation Control
http://www.centralmastormwater.org/Pages/crsc_toolbox/Erosion%20and%20Sedimentation%20Control%20SOP_FINAL.pdf

3.4.5 MCM 4 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 4. See Section 5 of this Plan for additional record keeping information.

- ☐ Number of site reviews, inspections, and enforcement actions; and
- ☐ Modifications to Littleton's bylaws, regulations, policies, and/or procedures as necessary.

3.5 MCM 5: Post-Construction Stormwater Management

Objective: *Reduce the discharge of pollutants found in stormwater through the retention or treatment of stormwater after construction on new or redeveloped sites.*

This section of the SWMP describes how to comply with the Stormwater Management in New Development and Redevelopment requirements in General Permit Section 2.3.6.

3.5.1 MCM 5 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
5A	Post-Construction Bylaw and Regulations	Modify local regulations to contain new MS4 provisions per section 2.3.6.a.	Planning Board	Modify existing regulations within two (2) years of permit effective date	2019 (PY2)
5B	Assess street and parking lot guidelines	Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.	Planning Board	Complete report no later than (4) years of permit effective date	2020 (PY3)
5C	Assess allowing green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Planning Board	Complete report no later than (4) years of permit effective date	2020 (PY3)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
5D	Retrofit Feasibility Assessment	Conduct detailed inventory of Town-owned properties and rank for retrofit potential	Planning Board, Highway	Complete report no later than four (4) years of permit effective date. Beginning in year 5 keep running list of at least five (5) retrofit sites	2020 (PY3)

3.5.2 MCM 5 Implementation Plan

BMP 5A Post-Construction Bylaw and Regulations

The Town shall implement and enforce a program to reduce pollutants in stormwater runoff discharged to the municipal drainage system from post-construction activities for all new development and redevelopment sites greater than one acre. Littleton has met this requirement by adopting a bylaw entitled Stormwater Management and Erosion Control in 2016. This bylaw provides guidance for site planning and stormwater runoff control during construction and post-construction to protect local water resources from discharges. The Planning Board serves as the enforcement agency for the bylaw and has adopted implementing regulations.

The Town will need to review the existing bylaw and the *Planning Board Stormwater Management and Erosion Control Regulations* with respect to the 2016 General Permit and modify it if needed. Additionally, the Town must have procedures in place to require the submission of as-built plans after the completion of construction projects and ensure long-term operation and maintenance of stormwater management practices in place at construction sites. The Town has already met these requirements through Sections 38-18 and 38-19 of the *Stormwater Management and Erosion Control* Bylaw and Section 6 of the *Planning Board Stormwater Management and Erosion Control Regulations*.

BMP 5B Assess Street and Parking Lot Guidelines

In accordance with General Permit Section 2.3.6.b, Littleton shall develop a report assessing current street design and parking lot guidelines and other local requirements that affect the creation of impervious cover. This assessment shall be used to provide information to allow the Town to determine if changes to design standards for streets and parking lots can be made to support low impact design (LID) options. Input will be gathered from multiple Town departments. The final report will be appended to this SWMP once completed.

BMP 5C Assess Feasibility of Allowing Green Infrastructure

As detailed in General Permit Section 2.3.6.c, Littleton shall develop a report assessing local regulations to determine the feasibility of making green roofs, infiltration practices, and water harvesting devices allowable when appropriate site conditions exist. The Town shall implement all recommendations in accordance with the schedules contained in the assessment.

BMP 5D Retrofit Feasibility Assessment

The Town must identify at least five town-owned properties that could potentially be modified or retrofitted with BMPs designed to reduce the frequency, volume, and pollutant loads of stormwater discharges through a reduction of impervious area. General Permit Section 2.3.6.d describes factors and considerations for selecting potential sites with the goal of reducing impervious area and improving water quality. The inventory must be updated annually starting in Permit Year 5.

3.5.3 MCM 5 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
5A Post-Construction Bylaw and Regulations		●			
5B Assess Street and Parking Lot Guidelines				●	
5C Assess Feasibility of Allowing Green Infrastructure				●	
5D Retrofit Feasibility Assessment				●→	

● = year due

3.5.4 MCM 5 Guidelines and Resources

The following links include free or low-cost resources Littleton can use to supplement the Post-Construction program.

Massachusetts Stormwater Handbook
https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards

EPA Stormwater Management Program Resources – Post Construction Stormwater Control
https://www.epa.gov/npdes-permits/stormwater-tools-new-england#pcsm

EPA National Menu of BMPs for Stormwater
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#post

Littleton *Stormwater Management and Erosion Control* Bylaw
https://www.littletonma.org/sites/littletonma/files/uploads/5-2-16_atm_art_21_by-law_-_stormwater_management_and_erosion_control_0.pdf

Littleton Planning Board *Stormwater Management and Erosion Control Regulations*
https://www.littletonma.org/sites/littletonma/files/uploads/littleton_stormwater_regulations_final_7-13-2017_0.pdf

Managing Stormwater in Your Community: A Guide for Building an Effective Post-Construction Program
https://www3.epa.gov/npdes/pubs/stormwaterinthecommunity.pdf

EPA Managing Stormwater with LID Practices: Addressing Barriers to LID
https://www3.epa.gov/region1/npdes/stormwater/assets/pdfs/AddressingBarrier2LID.pdf

Metropolitan Area Planning Council LID Toolkit
https://www.mapc.org/resource-library/low-impact-development-toolkit/

Central Massachusetts Regional Stormwater Coalition SOP 5: Construction Site Inspection
http://www.centralmastormwater.org/Pages/crsc_toolbox/Construction%20Inspection%20SOP_FINAL.pdf

Central Massachusetts Regional Stormwater Coalition SOP 6: Erosion and Sedimentation Control
http://www.centralmastormwater.org/Pages/crsc_toolbox/Erosion%20and%20Sedimentation%20Control%20SOP_FINAL.pdf

3.5.5 MCM 5 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 5. See Section 5 of this Plan for additional record keeping information.

- ☐ Measures the Town has taken to ensure adequate long-term operation and maintenance of stormwater BMPs and to require submission of as-built plans;
- ☐ Modifications to Littleton's bylaws, regulations, policies, and/or procedures as necessary;
- ☐ Status of BMP 5B and 5C assessments, including any planned or completed changes to local regulations and guidelines (BMP 5B) and findings and progress towards making the practices allowable (BMP 5C); and
- ☐ Retrofit inventory, including all sites that have been modified or retrofitted. Sites should include town-owned sites identified in the inventory as well as non-municipal property modified or retrofitted to mitigate impervious area.

3.6 MCM 6: Good Housekeeping and Pollution Prevention

Objective: *The permittee shall implement an operations and maintenance program for permittee-owned operations that has a goal of preventing or reducing pollutant runoff and protecting water quality from all permittee-owned operations.*

This section of the SWMP describes how to comply with the Good Housekeeping and Pollution Prevention requirements in General Permit Section 2.3.7.

3.6.1 MCM 6 BMPs from NOI

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
6A	Operation & Maintenance Program	Inventory and create O&M procedures for all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment	Director of Public Works	Complete two (2) years after permit effective date, implement in following years	2019 (PY2)
6B	Operation & Maintenance Program	Establish and implement program for repair and rehabilitation of MS4 infrastructure	Highway	Complete two (2) years after permit effective date, implement in following years	2019 (PY2)

BMP ID	BMP Category	BMP Description	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
6C	Stormwater Pollution Prevention Plans (SWPPP)	Implement SWPPP for the Littleton Highway and Littleton Electric, Light and Water Department (LELWD) facility	Highway, Water Department	Complete SWPPPs within two (2) years of permit effective date, implement in following years	2019 (PY2)
6D-1	Operation & Maintenance Program	Implement procedures to optimize catch basin cleaning developed under BMP 6B	Highway	Track frequency and material quantity of catch basin cleaning in town. In first Annual Report and in SWMP, document plan for optimizing catch basin cleaning.	2018 (PY1)
6D-2	Operation & Maintenance Program	Implement procedures for street and parking lot sweeping developed under BMP 6B	Highway	Annually track number of miles cleaned or the volume or mass of material removed.	2018 (PY1)
6D-3	Operation & Maintenance Program	Implement procedures for use and storage of deicing materials developed under BMP 6B	Highway	Implement program for winter road maintenance throughout permit term.	2018 (PY1)
6D-4	Operation & Maintenance Program	Implement procedures to inspect and maintain Town-owned structural stormwater BMPs	Highway	Develop an inventory of Town-owned BMPs within two (2) years of permit effective date. Report on inspection and maintenance conducted annually.	2018 (PY1)

3.6.2 MCM 6 Implementation Plan

BMP 6A Operation and Maintenance Program for Municipal Facilities and Equipment

Littleton must develop a written Town-Wide Operation and Maintenance Program for municipal facilities and equipment, including:

- Parks and open space;
- Buildings and facilities, including schools, where pollutants are exposed to stormwater runoff; and
- Vehicles and equipment.

This plan will include an inventory of the municipally-owned facilities and equipment. The inventory and written program will be appended to this SWMP.

BMP 6B Operation and Maintenance Program for MS4 Infrastructure

The Town shall develop a written program describing the activities and procedures used to maintain MS4 infrastructure in a timely manner to reduce the discharge of pollutants from the MS4.

BMP 6C Stormwater Pollution Prevention Plans

A draft SWPPP has been developed for the Highway Department and LELWD facility and will be finalized during Permit Year 1. In accordance with General Permit Section 2.3.7.b, Littleton must also develop and implement a SWPPP for other Town-owned or operated waste handling facilities where pollutants are exposed to stormwater, including the Town's transfer station. SWPPP requirements include regular employee training for all members of the Pollution Prevention Team (annual training is recommended, at a minimum). Additionally, quarterly site inspections are required at these sites according to General Permit Section 2.3.7.b.iii.

BMP 6D-1 Catch Basin Cleaning

The Town must clean and inspect catch basins to make sure that catch basins are no more than 50% full. Develop and implement a program to optimize routine inspections, cleaning, and maintenance of catch basins. If a catch basin is consistently less than 50% fill, the Town can reduce the frequency of cleanings. If a catch basin is more than 50% full during two consecutive cleanings/inspections, the Town must investigate the contributing drainage area for sources of excessive sediment loading abate contributing sources when possible. Store and dispose/reuse catch basin cleanings according to MassDEP policies.

BMP 6D-2 Street Sweeping

Establish and implement procedures for sweeping and/or cleaning streets and Town-owned parking lots. All streets must be swept and/or cleaned at least once per year in the spring (excluding rural streets with no curbs or catch basins). More frequent sweeping shall occur in targeted areas on the basis of pollutant load reduction potential. Store and dispose/reuse street sweepings according to MassDEP policies.

For rural streets with no curbs or catch basins, the Town must sweep at least once per year or develop a targeted inspection and sweeping plan for those streets.

BMP 6D-3 Deicing Materials

Establish and implement procedures for winter road maintenance, including the use and storage of salt and sand.

BMP 6D-4 Inspection and Maintenance of Town-Owned BMPs

The Town shall develop inspection and maintenance procedures and frequencies for all stormwater treatment structures. An important first step will be to improve the inventory, mapping, and record keeping procedures for Town-owned or operated stormwater BMPs, such as detention ponds and swales. All town-owned BMPs must be inspected annually at a minimum.

Note that drainage manholes and catch basins are not considered stormwater treatment structures for this BMP (structure maintenance procedures will be developed and implemented under BMPs 6B and 6D-1).

3.6.3 MCM 6 Implementation Schedule

BMP	PY1	PY2	PY3	PY4	PY5
6A O&M Program for Municipal Facilities and Equipment		●			
6B O&M Program for MS4 Infrastructure		●			
6C Stormwater Pollution Prevention Plans		●			
6D-1 Catch Basin Cleaning	●	↔	↔	↔	↔
6D-2 Street Sweeping		●	↔	↔	↔
6D-3 Deicing Materials		↔	↔	↔	↔
6D-4 Inspection and Maintenance of Town-Owned BMPs	●	●	●	●	●

● = annual requirement or year due

↔ = ongoing requirement

3.6.4 MCM 6 Guidelines and Resources

The following links include free or low-cost resources Littleton can use to supplement the Good Housekeeping and Pollution Prevention program. The Town should also refer to the Oil SPCC Plan and SWPPP located in the Highway Department.

EPA Stormwater Management Program Resources – Good Housekeeping
https://www.epa.gov/npdes-permits/stormwater-tools-new-england#gh

EPA National Menu of BMPs for Stormwater
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#poll

Center for Watershed Protection Municipal Pollution Prevention/Good Housekeeping Practices
http://cdrpc.org/wp-content/uploads/2015/05/CWP_Municipal_Pollution_Prevention.pdf

MassDEP Management of Catch Basin Cleanings
https://www.mass.gov/files/documents/2018/03/09/catch-basins.pdf

MassDEP Reuse & Disposal of Street Sweepings
https://www.mass.gov/files/documents/2018/05/14/street-sweepings.pdf

MassDEP Snow Disposal Guidance
https://www.mass.gov/guides/snow-disposal-guidance

Central Massachusetts Regional Stormwater Coalition SOP: Inspecting Constructed BMPs
http://centralmastormwater.org/Pages/crsc_toolbox/Constructed%20BMP%20Inspection%20SOP_FINAL.pdf

3.6.5 MCM 6 Checklist of Key Documentation

Documentation of BMP progress should be kept in Appendix F. The following checklist includes the required documentation for MCM 6. See Section 5 of this Plan for additional record keeping information.

- ☐ Inventory of municipal facilities and equipment;
- ☐ Plan for optimizing catch basin cleaning and metrics about the number of catch basins, quantity cleaned and inspected, and total volume of material removed from all catch basins;
- ☐ Miles of streets cleaned and the volume of material removed; and
- ☐ All records associated with SWPPP quarterly site inspections, maintenance activities, and training.

Section 4
BMPs to Address Specific Waterbody Requirements

4.1 Impaired Waterbodies

As described in Sections 2 of the SWMP, several surface waterbodies within Littleton were identified in the 2014 Integrated List of Waters as Category 5 waters needing a TMDL. Although Long Pond, Spectacle Pond, and Beaver Brook are impaired for dissolved oxygen, no additional BMPs are required for these waterbodies. The 2016 General Permit does not require BMPs or outreach to be completed for dissolved oxygen impairments beyond the outfall/interconnection monitoring described in the IDDE Plan. Additionally, Forge Pond is impaired for mercury in fish tissue with a final TMDL, but no BMPs are required to address this legacy pollutant.

Long Pond is impaired for total phosphorus. Per Appendix H of the General Permit, the Town must comply with the additional requirements listed in Section 4.1.1 below to address phosphorus in their stormwater discharges.

Beaver Brook and the Unnamed Tributary (Reedy Meadow Brook) are impaired for bacteria. Per Appendix H of the General Permit, the Town must comply with the additional requirements listed in Section 4.1.2 below to address bacteria or pathogens in their stormwater discharges.

Beaver Brook is also impaired for solids. Per Appendix H of the General Permit, the Town must comply with the additional requirements listed in Section 4.1.3 below to address solids in their stormwater discharges.

Note that while Bennetts Brook is impaired for E. coli, there are no mapped outfalls discharging to the brook. Littleton should field verify that there are not outfalls discharging to Bennetts Brook and, if confirmed, the Town is not contributing to the E. coli impairment and does not need to complete any further BMPs as part of Appendix H of the General Permit.

4.1.1 Enhanced BMPs for Phosphorus – Long Pond

General Permit Part 2.3.2: Public Education and Outreach

Littleton shall supplement the residential and business/commercial/institution public education program with an annual message about various topics, including:

- Spring – the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers;
- Summer – the proper management of pet waste, including noting any existing bylaws where appropriate; and
- Fall – the proper disposal of leaf litter.

General Permit Part 2.3.6: Stormwater Management in New Development and Redevelopment

Littleton's *Stormwater Management and Erosion Control* Bylaw or *Planning Board Stormwater Management and Erosion Control Regulations* shall include requirements that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal. Additionally, the Town shall include BMPs that infiltrate stormwater when possible.

General Permit Part 2.3.7: Good House Keeping and Pollution Prevention for Permittee Owned Operations

The Town shall establish a program to properly manage grass cuttings and leaf litter on Town-owned properties, including prohibiting blowing organic waste onto impervious surfaces. Littleton shall also increase street sweeping to a minimum of two occurrences per year within the Long Pond watershed, once in the spring and at least once in the fall.

Phosphorus Source Identification Report

Within four years of the permit effective date, the Town must complete a Phosphorus Source Identification Report that includes the following components:

- Calculation of total MS4 area draining to the water quality limited receiving water segments or their tributaries, including updated mapping and catchment delineations completed under the IDDE Program;
- All screening and monitoring results targeting the receiving water segment(s);
- Impervious area and directly connected impervious area for the target catchment;
- Identification, delineation, and prioritization of potential catchments with high phosphorus loading; and
- Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area.

Potential Structural BMPs

Within five years of the permit effective date, the Town must evaluate all Town-owned properties identified as presenting retrofit opportunities or areas for structural BMP installation under the Good Housekeeping Program or in the Phosphorus Source Identification Report that are within the drainage area of the water quality limited water or its tributaries. The evaluation shall include:

- The next planned infrastructure, resurfacing, or redevelopment activity planned for the property (if applicable) OR planned retrofit date;
- The estimated cost of redevelopment or retrofit BMPs; and
- The engineering and regulatory feasibility of redevelopment or retrofit BMPs.

The Town must also provide a list of planned structural BMPs and a plan and schedule for implementation. At least one structural BMP must be installed as a "demonstration project" within a catchment with high phosphorus load potential within six years of the permit effective date. The estimated phosphorus removal by structural BMPs installed in Littleton's regulated area must be tracked.

4.1.2 Enhanced BMPs for Bacteria or Pathogens – Beaver Brook, Reedy Meadow Brook, Bennetts Brook

General Permit Part 2.3.2: Public Education and Outreach

Littleton shall supplement the residential public education program with an annual message about the proper management of pet waste, including noting any existing bylaws where appropriate, and disseminating educational materials to dog owners at the time of issuance or renewal of a dog license. Education materials shall describe the detrimental impacts of improper management of pet waste, requirements for waste collection and disposal, and penalties for non-compliance.

The Town shall also provide information to owners of septic systems about proper maintenance in any catchment that discharges to a waterbody impaired for bacteria or pathogens (i.e., Beaver Brook, Reedy Meadow Brook, Bennetts Brook, etc.).

General Permit Part 2.3.4: Illicit Discharge

Littleton shall implement the IDDE program required by the General Permit and described in Section 3.3 of this SWMP. Additionally, catchments draining to any waterbody impaired for bacteria or pathogens shall be designated as either Problem or High Priority in implementation of the IDDE program.

4.1.3 Enhanced BMPs for Solids – Beaver Brook

General Permit Part 2.3.6: Stormwater Management in New Development and Redevelopment

Stormwater management systems designed on commercial and industrial land that drains to the water quality limited waterbody shall incorporate designs that allow for shutdown and containment where appropriate to isolate the system in the event of an emergency spill or other unexpected event. EPA also encourages the Town to require any stormwater management system designed to infiltrate stormwater on commercial or industrial sites to provide the level of pollutant removal equal to or greater than the level of pollutant removal provided through the use of biofiltration of the same volume of runoff to be infiltrated, prior to infiltration.

General Permit Part 2.3.7: Good House Keeping and Pollution Prevention for Permittee Owned Operations

The Town shall:

- Increase street sweeping frequency of all municipally-owned streets and parking lots to target areas with potential for high pollutant loads. This may include, but is not limited to, increased street sweeping frequency in commercial areas and high density residential areas, or drainage areas with a large amount of impervious area.
- Prioritize inspection and maintenance for catch basins to ensure that no sump is more than 50 percent full. Clean catch basins more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings.
- Annually report on the street sweeping schedule to target high pollutant loads.

4.2 Assabet River Watershed Total Phosphorus TMDL

As described in Section 2.2.3 of the SWMP, a final TMDL for total phosphorus has been developed for the Assabet River Watershed. This TMDL requires that Towns discharging to the impaired waterways within the Assabet River Watershed, either directly or indirectly, must comply with requirements in Appendix F of the General Permit. These requirements are summarized below as they apply to Littleton's program.

4.2.1 Enhanced BMPs

General Permit Part 2.3.2: Public Education and Outreach

Littleton shall supplement the residential and business/commercial/institution public education program with an annual message about various topics, including:

- Spring – the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers;
- Summer – the proper management of pet waste, including noting any existing bylaws where appropriate; and
- Fall – the proper disposal of leaf litter.

General Permit Part 2.3.6: Stormwater Management in New Development and Redevelopment

Littleton's *Stormwater Management and Erosion Control* Bylaw or *Planning Board Stormwater Management and Erosion Control Regulations* shall include requirements that new development and redevelopment stormwater management BMPs be optimized for phosphorus removal. Additionally, the Town shall include BMPs that infiltrate stormwater when possible.

General Permit Part 2.3.7: Good House Keeping and Pollution Prevention for Permittee Owned Operations

The Town shall establish a program to properly manage grass cuttings and leaf litter on Town-owned properties, including prohibiting blowing organic waste onto impervious surfaces. Littleton shall also increase street sweeping to a minimum of two occurrences per year within the Assabet River Watershed, once in the spring and at least once in the fall.

4.3 Additional Requirements for Discharges to Surface Drinking Water Supplies and Their Tributaries

According to Section 3.0 of the 2016 General Permit, MS4s that discharge to public surface drinking water supply sources or their tributaries should consider these waters a priority in the implementation of the SWMP.

Additionally, Littleton should provide pretreatment and spill control measures to any stormwater discharges entering drinking water supply sources or their tributaries, and/or direct discharges should be avoided to the extent feasible.

Section 5
Program Evaluation, Record Keeping, and Reporting

5.1 Program Evaluation

The Town will annually self-evaluate its compliance with the terms and conditions of the 2016 General Permit, including the appropriateness of selected BMPs and progress toward defined measurable goals. The self-evaluation will be submitted as part of the Annual Report and maintained as part of the SWMP.

5.2 Record Keeping

The Town will keep all records required by the 2016 General Permit for **at least five years**, including, but not limited to the following key information:

- Monitoring results;
- Copies of reports;
- Records of outfall/interconnection screening;
- Follow-up and elimination of illicit discharges;
- Maintenance records; and
- Inspection records.

Checklists of record keeping items Littleton should maintain are also included under each BMP in Section 3 and in Appendix F of the SWMP. Records relating to the 2016 General Permit, including the SWMP, will be made available to the public, as required by Section 4.2.c of the Permit.

5.3 Annual Reports

The Town will submit annual reports each year of the Small MS4 permit term, 90 days from the close of the reporting period (i.e., September 28). The reporting period will be a one-year period commencing on the permit effective date, and subsequent anniversaries thereof, except that the first annual report under the 2016 General Permit shall also cover the period from May 1, 2018 to the permit effective date, July 1, 2018. Under the 2016 General Permit, annual reports will consist of a simple update provided to EPA and more robust documentation included in Appendix F of this SWMP.

Per Section 4.4.b of the 2016 General Permit, the annual reports shall contain the following information:

i. A self-assessment review of compliance with the permit terms and conditions.

ii. An assessment of the appropriateness of the selected BMPs.

iii. The status of any plans or activities required by part 2.1 and/ or part 2.2, including:

- *Identification of all discharges determined to be causing or contributing to an exceedance of water quality standards and description of response including all items required by part 2.1.1;*
- *For discharges subject to TMDL related requirements, identification of specific BMPs used to address the pollutant identified as the cause of impairment and assessment of the BMPs effectiveness at controlling the pollutant (part 2.2.1. and Appendix F) and any deliverables required by Appendix F;*
- *For discharges to water quality limited waters a description of each BMP required by Appendix H and any deliverables required by Appendix H.*

iv. *An assessment of the progress towards achieving the measurable goals and objectives of each control measure in part 2.3 including:*

- *Evaluation of the public education program including a description of the targeted messages for each audience; method of distribution and dates of distribution; methods used to evaluate the program; and any changes to the program.*
- *Description of the activities used to promote public participation including documentation of compliance with state public notice regulations.*
- *Description of the activities related to implementation of the IDDE program including: status of the map; status and results of the illicit discharge potential ranking and assessment; identification of problem catchments; status of all protocols described in part 2.3.4.(program responsibilities and systematic procedure); number and identifier of catchments evaluated; number and identifier of outfalls screened; number of illicit discharges located; number of illicit discharges removed; gallons of flow removed; identification of tracking indicators and measures of progress based on those indicators; and employee training.*
- *Evaluation of the construction runoff management including number of project plans reviewed; number of inspections; and number of enforcement actions.*
- *Evaluation of stormwater management for new development and redevelopment including status of ordinance development (2.3.6.a.ii.), review and status of the street design assessment(2.3.6.b.), assessments to barriers to green infrastructure (2.3.6.c), and retrofit inventory status (2.3.6.d.)*
- *Status of the O&M Programs required by part 2.3.7.a.*
- *Status of SWPPP required by part 2.3.7.b. including inspection results.*
- *Any additional reporting requirements in part 3.0.*

v. *All outfall screening and monitoring data collected by or on behalf of the permittee during the reporting period and cumulative for the permit term, including but not limited to all data collected pursuant to part 2.3.4. The permittee shall also provide a description of any additional monitoring data received by the permittee during the reporting period.*

vi. *Description of activities for the next reporting cycle.*

vii. *Description of any changes in identified BMPs or measurable goals.*

viii. *Description of activities undertaken by any entity contracted for achieving any measurable goal or implementing any control measure.*

5.4 SWMP Modifications

Per Section 4.1 of the 2016 General Permit, the Town shall complete the following tasks:

a. *The permittee shall annually self-evaluate its compliance with the terms and conditions of this permit and submit each self-evaluation in the Annual Report. The permittee shall also maintain the annual evaluation documentation as part of the SWMP.*

b. *The permittee shall evaluate the appropriateness of the selected BMPs in achieving the objectives of each control measure and the defined measurable goals. Where a BMP is found to be ineffective the permittee shall change BMPs in accordance with the provisions below. In addition, permittees may augment or change BMPs at any time following the provisions below:*

    - *Changes adding (but not subtracting or replacing) components or controls may be made at any time.*
    - *Changes replacing an ineffective or infeasible BMP specifically identified in the SWMP with an alternative BMP may be made as long as the basis for the changes is documented in the SWMP by, at a minimum:*
        - *An analysis of why the BMP is ineffective or infeasible;*
        - *Expectations on the effectiveness of the replacement BMP; and*
        - *An analysis of why the replacement BMP is expected to achieve the defined goals of the BMP to be replaced.*

    The permittee shall indicate BMP modifications along with a brief explanation of the modification in each Annual Report.

c. *EPA or MassDEP may require the permittee to add, modify, repair, replace or change BMPs or other measures described in the annual reports as needed:*
    - *To address impacts to receiving water quality caused or contributed to by discharges from the MS4; or*
    - *To satisfy conditions of this permit*

    Any changes requested by EPA or MassDEP will be in writing and will set forth the schedule for the permittee to develop the changes and will offer the permittee the opportunity to propose alternative program changes to meet the objective of the requested modification.

The Town may update or revise the SWMP as needed as the Town's activities are modified, changed, or updated to meet permit conditions during the permit term. If it is necessary to modify or update the SWMP, the Town should follow this procedure to formalize the changes:

- Keep a log with a description of the modification, the date, and the name and signature of the person making it; and
- Re-sign and date the certification statement in Section 6 of this SWMP.

A SWMP amendment log and additional certification statements are located in Appendix G.

Section 6
SWMP Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: JOSEPH S. KNOX Title: SELECTMAN CHAIR

Signature: Joseph S. Knox Date: 6-30-19

A letter that authorizes the Town of Littleton's Town Administrator and Director of the Department of Public Works to sign and certify certain documents prepared under the Small MS4 General Permit is included in Appendix H.

Appendix A

Notice of Intent
and
Authorization to Discharge Letter from EPA

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part I: General Conditions

General Information

Name of Municipality or Organization: Town of Littleton

State: MA

EPA NPDES Permit Number (if applicable): MA041204

Primary MS4 Program Manager Contact Information

Name: Chris Stoddard, P.E.

Title: Director of Public Works

Street Address Line 1: 39 Ayer Road

Street Address Line 2:

City: Littleton

State: MA

Zip Code: 01460

Email: cstoddard@littletonma.org

Phone Number: (978) 540-2670

Fax Number:

Other Information

Stormwater Management Program (SWMP) Location (web address or physical location, if already completed): Final SWMP will be posted online at https://www.littletonma.org/stormwater

Eligibility Determination

Endangered Species Act (ESA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☐ A ☐ B ☒ C

National Historic Preservation Act (NHPA) Determination Complete? Yes

Eligibility Criteria (check all that apply): ☒ A ☐ B ☐ C

☑ Check the box if your municipality or organization was covered under the 2003 MS4 General Permit

MS4 Infrastructure (if covered under the 2003 permit)

Estimated Percent of Outfall Map Complete? *(Part II, III, IV or V, Subpart B.3.(a.) of 2003 permit)*: 100%

If 100% of 2003 requirements not met, enter an estimated date of completion (MM/DD/YY):

Web address where MS4 map is published:

If outfall map is unavailable on the internet an electronic or paper copy of the outfall map must be included with NOI submission (see section V for submission options)

See attached maps

Regulatory Authorities (if covered under the 2003 permit)

Illicit Discharge Detection and Elimination (IDDE) Authority Adopted? *(Part II, III, IV or V, Subpart B.3.(b.) of 2003 permit)*: Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 08/11/16

Construction/Erosion and Sediment Control (ESC) Authority Adopted? *(Part II,III,IV or V, Subpart B.4.(a.) of 2003 permit)*: Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 08/11/16

Post- Construction Stormwater Management Adopted? *(Part II, III, IV or V, Subpart B.5.(a.) of 2003 permit)*: Yes

Effective Date or Estimated Date of Adoption (MM/DD/YY): 08/11/16

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part II: Summary of Receiving Waters

Please list the waterbodies to which your MS4 discharges. For each waterbody, please report the number of outfalls discharging into it and, if applicable, the segment ID and any impairments.

Massachusetts list of impaired waters: Massachusetts 2014 List of Impaired Waters- http://www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf

Waterbody that receives flow from the MS4 and segment ID if applicable	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/ PAH	Phosphorus	Solids/ TSS/ Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
Beaver Brook (MA84B-02)	1	☐	☐	☒	☐	☐	☐	☒	☐	☐	Fecal Coliform, Low pH
Wetland/Tributary to Beaver Brook (MA84B-02)	6	☐	☐	☒	☐	☐	☐	☒	☐	☐	Fecal Coliform, Low pH
Beaver Brook (MA84B-05)	8	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Wetland/Tributary to Beaver Brook (MA84B-05)	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Forge Pond (MA84015)	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	Non-Native Aquatic Plants, Mercury in Fish Tissue
Fort Pond Brook (MA82B-13)	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Wetland/Tributary to Fort Pond Brook (MA82B-13)	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Gilson Brook	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Long Pond (MA82072)	16	☐	☐	☒	☐	☐	☒	☐	☐	☐	Excess Algal Growth
Wetland/Tributary to Long Pond (MA82072)	6	☐	☐	☒	☐	☐	☒	☐	☐	☐	Excess Algal Growth
Mill Pond - North Basin (MA84038)	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	Aquatic Plants (Macrophytes)
Mill Pond - South Basin (MA84081)	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Aquatic Plants (Macrophytes)
Wetland/Tributary to Mill Pond - South Basin (MA84081)	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	Aquatic Plants (Macrophytes)
Nagog Pond (MA82082)	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Wetland/Tributary to Nagog Pond (MA82082)	2	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Unnamed Tributary (Reedy Meadow Brook) (MA84B-01)	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	Fecal Coliform
Wetland/Tributary to Unnamed Tributary (Reedy Meadow Brook) (MA84B-01)	4	☐	☐	☐	☐	☐	☐	☐	☐	☐	Fecal Coliform
Wetland/Tributary to Fort Pond (MA82043)	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	

Waterbody that receives flow from the MS4 and segment ID if applicable	Number of outfalls into receiving water segment	Chloride	Chlorophyll-a	Dissolved Oxygen/ DO Saturation	Nitrogen	Oil & Grease/ PAH	Phosphorus	Solids/ TSS/ Turbidity	E. coli	Enterococcus	Other pollutant(s) causing impairments
Wetland/Tributary to Nashoba Brook (MA82B-14)	8	☐	☐	☐	☐	☐	☐	☐	☐	☐	Low flow alterations, Fishes Bioassessments
Wetland/Tributary to Spectacle Pond (MA84089)	4	☐	☐	☒	☐	☐	☐	☐	☐	☐	Non-Native Aquatic Plants
Isolated Wetland off of King Street	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Isolated Wetland off of White Street	1	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Outside Receiving	209	☐	☐	☐	☐	☐	☐	☐	☐	☐	
		☐	☐	☐	☐	☐	☐	☐	☐	☐	
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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

Identify the Best Management Practices (BMPs) that will be employed to address each of the six Minimum Control Measures (MCMS). For municipalities/organizations whose MS4 discharges into a receiving water with an approved Total Maximum Daily Load (TMDL) and applicable waste load allocation (WLA), identify any additional BMPs employed to specifically support the achievement of the WLA in the TMDL section at the end of Part III.

For each MCM, list each existing or proposed BMP by category and provide a brief description, responsible parties/departments, measurable goals, and the year the BMP will be employed (public education and outreach BMPs also require a target audience).

MCM 1: Public Education and Outreach

BMP ID	BMP Media/Category	BMP Description	Targeted Audience	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
1A	Multi-media methods (including social media and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including proper pet waste management, proper use of pesticides and fertilizers). Educational topics will include but are not limited to those in Part 2.3.2.d.i	Residents	Water Department, Clean Lakes Committee	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)
1B	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including proper lawn maintenance, parking lot sweeping). Educational topics will include but are not limited to those in Part 2.3.2.d.ii	Businesses, Institutions, and Commercial Facilities	Water Department, Clean Lakes Committee	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

BMP ID	BMP Media/Category	BMP Description	Targeted Audience	Responsible Department/ Parties	Measurable Goal	Beginning Year of BMP Implementation
1C	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including proper erosion and sedimentation control, permit requirements, and design standards). Educational topics will include but are not limited to those in Part 2.3.2.d.iii	Developers (Construction)	Conservation, Planning	Distribute a minimum of two (2) educational messages spaced at least a year apart	2018 (PY1)
1D	Multi-media methods (including web and print materials)	Education and outreach on stormwater management topics of significance in Littleton (including pollution prevention, illicit discharges, information about the Multi-Sector General Permit). Educational topics will include but are not limited to those in Part 2.3.2.d.iv	Industrial Facilities	Water Department, Clean Lakes Committee	Distribute a minimum of two (2) educational messages spaced at least a year apart	2019 (PY2)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 2: Public Involvement and Participation

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
2A	Public Review	SWMP review (Plan and reports available on web and at public meetings)	Board of Selectmen, Town Administrator	Annually provide the public with an opportunity to participate in the review and implementation of the SWMP	2018 (PY1)
2B	Public Participation	Provide opportunities for public involvement and participation in Littleton' stormwater program (including school field trips and clean up events). Specific activities, schedule, and lead departments are included in the SWMP.	Highway, Water Department	Ongoing compliance	2018 (PY1)

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 3: Illicit Discharge Detection and Elimination (IDDE)

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
3A	IDDE Bylaw	Complete. Continue to enforce and update if necessary.	Board of Health, Highway	Track illicit discharges identified and removed.	2018 (PY1)
3B	SSO Inventory	Develop SSO inventory in accordance with permit conditions	Highway	Complete within one (1) year of effective date of permit. Track # of SSOs identified and removed annually	2018 (PY1)
3C	Storm sewer system map	Improve map during IDDE Program implementation	Highway	Update map within two (2) years of effective date of permit and complete full system map 10 years after effective date of permit	2018 (PY1)
3D	Written IDDE program	Complete. Update written IDDE Plan as necessary	Highway	Complete within one (1) year of the effective date of permit and update as required	2018 (PY1)
3E-1	Assessment and Priority Ranking of Outfalls & Interconnections	Outfall/ Interconnection Inventory and Initial Ranking as part of BMP 3D. Complete.	Highway	Complete within one (1) year of the effective date of permit and update as necessary	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
3E-2	Assessment and Priority Ranking of Outfalls & Interconnections	Dry Weather Outfall Screening & Sampling in accordance with IDDE Plan and permit conditions.	Highway	Complete three (3) years after effective date of permit. Track # of illicit discharges identified & volume removed. Summarize screening/ sampling results.	2018 (PY1)
3E-3	Assessment and Priority Ranking of Outfalls & Interconnections	Catchment Investigations according to IDDE Program and permit conditions	Highway	Complete 10 years after effective date of permit. Track # and percentage of MS4 catchments evaluated. Track # of illicit discharges identified & volume removed. Summarize screening/sampling results.	2019 (PY2)
3F	Employee Training	Train employees on IDDE implementation	Highway	Train annually. Track employees trained, training topic, date/time, and materials presented.	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 4: Construction Site Stormwater Runoff Control

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
4A	Construction Bylaw and Regulations	Confirm that local bylaw and regulations comply with new MS4 provisions per section 2.3.5.	Planning Board	Review and modify if necessary within one (1) year of permit effective date	2018 (PY1)
4B	Construction Policy and Procedures	Develop and implement written procedures for site inspections and enforcement procedures per section 2.3.5.	Planning Board	Review current procedures and modify if necessary within one (1) year of permit effective date	2018 (PY1)

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Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 5: Post-Construction Stormwater Management in New Development and Redevelopment

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
5A	Post-Construction Bylaw and Regulations	Modify local regulations to contain new MS4 provisions per section 2.3.6.a.	Planning Board	Modify existing regulations within two (2) years of permit effective date	2019 (PY2)
5B	Assess street and parking lot guidelines	Develop a report assessing requirements that affect the creation of impervious cover. The assessment will help determine if changes to design standards for streets and parking lots can be modified to support low impact design options.	Planning Board	Complete report no later than four (4) years of permit effective date	2020 (PY3)
5C	Assess allowing green infrastructure	Develop a report assessing existing local regulations to determine the feasibility of making green infrastructure practices allowable when appropriate site conditions exist	Planning Board	Complete report no later than four (4) years of permit effective date	2020 (PY3)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
5D	Retrofit Feasibility Assessment	Conduct detailed inventory of Town-owned properties and rank for retrofit potential	Planning Board, Highway	Complete report no later than four (4) years of permit effective date. Beginning in year 5 keep running list of at least five (5) retrofit sites	2020 (PY3)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary

MCM 6: Municipal Good Housekeeping and Pollution Prevention

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
6A	Operation & Maintenance Program	Inventory and create O&M procedures for all permittee-owned parks and open spaces, buildings and facilities (including their storm drains), and vehicles and equipment	Director of Public Works	Complete two (2) years after permit effective date, implement in following years	2019 (PY2)
6B	Operation & Maintenance Program	Establish and implement program for repair and rehabilitation of MS4 infrastructure	Highway	Complete two (2) years after permit effective date, implement in following years	2019 (PY2)
6C	Stormwater Pollution Prevention Plans (SWPPP)	Implement SWPPP for the Littleton Highway and Littleton Electric, Light and Water Department (LELWD) facility	Highway, Water Department	Complete SWPPPs within two (2) years of permit effective date, implement in following years	2019 (PY2)
6D-1	Operation & Maintenance Program	Implement procedures to optimize catch basin cleaning developed under BMP 6B	Highway	Track frequency and material quantity of catch basin cleaning in town. In first Annual Report and in SWMP, document plan for optimizing catch basin cleaning.	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

BMP ID	BMP Category	BMP Description	Responsible Department/Parties	Measurable Goal	Beginning Year of BMP Implementation
6D-2	Operation & Maintenance Program	Implement procedures for street and parking lot sweeping developed under BMP 6B	Highway	Annually track number of miles cleaned or the volume or mass of material removed.	2018 (PY1)
6D-3	Operation & Maintenance Program	Implement procedures for use and storage of deicing materials developed under BMP 6B	Highway	Implement program for winter road maintenance throughout permit term.	2018 (PY1)
6D-4	Operation & Maintenance Program	Implement procedures to inspect and maintain Town-owned structural stormwater BMPs	Highway	Develop an inventory of Town-owned BMPs within two (2) years of permit effective date. Report on inspection and maintenance conducted annually.	2018 (PY1)

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Total Maximum Daily Load (TMDL) Requirements

Use the drop-down menus to select the applicable TMDL, action description to meet the TMDL requirements, and the responsible department/parties. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

Applicable TMDL	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
Assabet River (Phosphorus)	Adhere to requirements in part A.V of Appendix F	Highway

Notice of Intent (NOI) for coverage under Small MS4 General Permit

Part III: Stormwater Management Program Summary (continued)

Actions for Meeting Requirements Related to Water Quality Limited Waters

Use the drop-down menus to select the pollutant causing the water quality limitation and enter the waterbody ID(s) experiencing excursions above water quality standards for that pollutant. In addition, if you are subject to additional requirements due to a downstream nutrient impairment (see Part 2.2.2 of the permit) select the pollutant of concern and indicate applicable waterbody IDs or write "all waterbodies" if applicable. Choose the action description from the dropdown menu and indicate the responsible party. If no options are applicable, or more than one, **enter your own text to override drop-down menus.**

Pollutant	Waterbody ID(s)	Action Description	Responsible Department/Parties (enter your own text to override the drop down menu)
Phosphorus	Long Pond (MA84015)	Adhere to requirements in part II of Appendix H	Highway
Fecal Coliform	Beaver Brook (MA84B-02)	Adhere to requirements in part III of Appendix H	Highway
Fecal Coliform	Unnamed Tributary (MA84B-01)	Adhere to requirements in part III of Appendix H	Highway
TSS	Beaver Brook (MA84B-02)	Adhere to requirements in part V of Appendix H	Highway

Part IV: Notes and additional information

Use the space below to indicate the part(s) of 2.2.1and 2.2.2 that you have identified as not applicable to your MS4 because you do not discharge to the impaired water body or a tributary to an impaired water body due to nitrogen or phosphorus. Provide all supporting documentation below or attach additional documents if necessary. Also, provide any additional information about your MS4 program below.

1. BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the proposed 2016 General Permit BMPs included in the Stormwater Management Plan. The Plan describes how the BMPs under the 2003 permit fit into the new program, particularly where BMPs and/or measurable goals that are outdated or no longer appropriate have been replaced or updated.

2. The National Endangered Species Eligibility Determination screening process has been completed and the Town of Littleton meets Criterion C. The Town's stormwater discharges and discharge related activities will have no affect on listed species or critical habitat. The Town will consult with U.S. Fish and Wildlife as needed during the permit term.

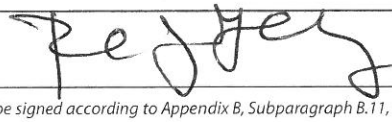
3. The National Historic Preservation Act Eligibility Determination screening process has been completed and the Town of Littleton meets Criterion A. The Town's stormwater discharges do not have the potential to cause effects on historic properties. The Town will consult with the State Historic Preservation Officer as needed during the permit term.

4. The outfalls and associated receiving waters in Part II are based on mapping as of September 2018 and are subject to change during implementation of the Stormwater Management Program as newly constructed outfalls are added to the map and inventory; locations are adjusted; or outfalls are removed if they are determined to be non-municipally owned/operated or reclassified as a BMP inlet, culvert, or other structure. Changes to the outfall inventory and mapping will be formalized in Annual Reports to EPA.

Detailed explanations of the above notes will be included in the Town's Stormwater Management Plan.

Part V: Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:	Paul Glavey	Title:	Board of Selectmen Chair
Signature:		Date:	9-24-18

[To be signed according to Appendix B, Subparagraph B.11, Standard Conditions]

Note: When prompted during signing, save the document under a new file name

OUTFALLS AND RECEIVING WATERBODIES

GROTON

AYER

HARVARD

BOXBOROUGH

ACTON

Forge Pond
Spectacle Pond
Sandy Pond
Gilson Brook
Beaverbrook
Bennetts Brook
Nashoba Brook
Mill Pond
Long Pond
Nagog Pond
Fort Pond

Legend

Outfall

Receiving Water

- Beaver Brook MA84B-02
- Wetland/Tributary to Beaver Brook MA84B-02
- Beaver Brook MA84B-05
- Wetland/Tributary to Beaver Brook MA84B-05
- Forge Pond MA84015
- Fort Pond Brook MA82B-13
- Wetland/Tributary to Fort Pond Brook MA82B-13
- Gilson Brook
- Long Pond MA82072
- Wetland/Tributary to Long Pond MA82072
- Mill Pond MA84038
- Mill Pond MA84081
- Wetland/Tributary to Mill Pond MA84081
- Nagog Pond MA82082
- Wetland/Tributary to Nagog Pond MA82082
- Unnamed Tributary (Reedy Meadow Brook) MA84B-01
- Wetland/Tributary to Unnamed Tributary (Reedy Meadow Brook) MA84B-01
- Wetland/Tributary to Nashoba Brook MA82B-14
- Wetland/Tributary to Spectacle Pond MA84089
- Wetland/Tributary to Fort Pond MA82043
- Isolated Wetland off of King Street
- Isolated Wetland off of White Street
- Outside Receiving

LEGEND

- Major Drainage Basin
- Subbasin

MassDEP Waterbodies

- Public Surface Water Supply (PSWS)
- Water Bodies
- MassDEP Inland Wetlands
- MassDEP Coastal Wetlands
- Stream/Intermittent Stream

National Wetlands Inventory Wetland Areas

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- NWI Rivers and Streams

Flood Zone Designations

- 100 Year Flood Zone

2014 Integrated List Data - 305(b)/303(d)

Category

- 2 - Attaining some uses; other uses not assessed
- 3 - No uses assessed
- 4A -Impaired - TMDL is completed
- 4C - Impairment not caused by a pollutant
- 5 - Impaired - TMDL required

Water Body Segments - Lakes, Estuaries

Category

- 2 - Attaining some uses; other uses not assessed
- 3 - No uses assessed
- 4A -Impaired - TMDL is completed
- 4C - Impairment not caused by a pollutant
- 5 - Impaired - TMDL required
- Urban Area (Census 2000)
- Urban Area (Census 2010)
- Town Boundary

LOCUS MAP

0 1,300 2,600
Feet

1:15,600

NOTES

1. Based on USGS Topo Map (1987 and 1988)
2. MassGIS: 2014 Integrated List Data (2016), Major Drainage Basins (2003), Subbasins (2007), Community Boundary (2017), National Wetlands Inventory (2007), FEMA National Flood Hazard (2017), MassDOT Major Roads (2014)
3. Town of Littleton: Outfalls

Notice of Intent

Littleton, Massachusetts

September 2018

Tighe&Bond
Engineers | Environmental Specialists

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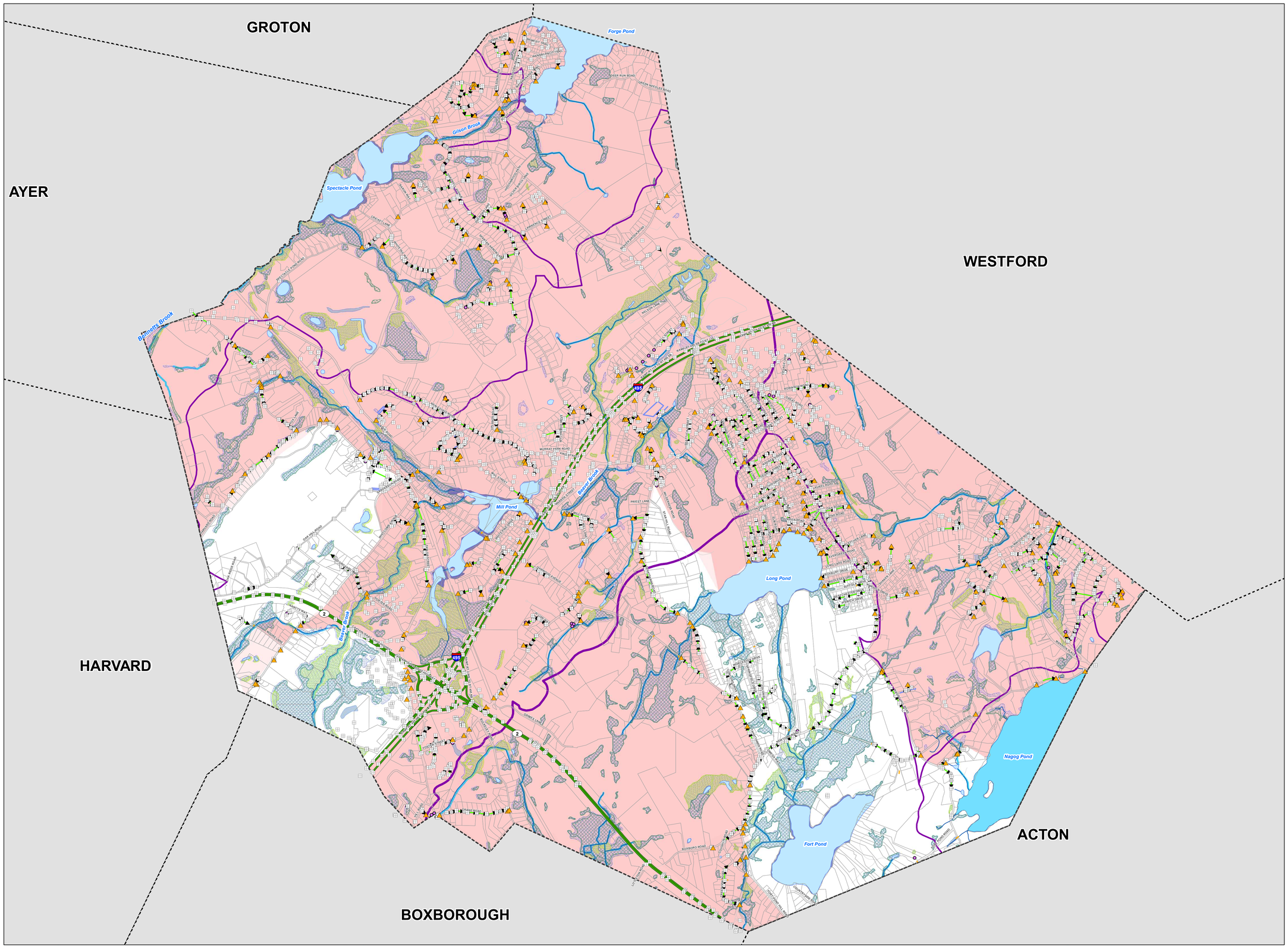

STORMWATER INFRASTRUCTURE

LEGEND

- Outfall
- Catch Basin
- Drain Manhole
- Drain Feature
- Culvert
- Drain Line
- Drain Feature Line
- Major Drainage Basin
- Subbasin

MassDEP Waterbodies

- Public Surface Water Supply (PSWS)
- Water Bodies
- MassDEP Inland Wetlands
- MassDEP Coastal Wetlands
- Stream/Intermittent Stream

National Wetlands Inventory Wetland Areas

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- NWI Rivers and Streams
- Urban Area (Census 2000)
- Urban Area (Census 2010)
- Parcel
- Town Boundary

LOCUS MAP

0 1,300 2,600
Feet

1:15,600

NOTES

1. MassGIS: Major Drainage Basins (2003), Subbasins (2007), Community Boundary (2017), National Wetlands Inventory (2007), FEMA National Flood Hazard (2017), MassDOT Major Roads (2014)
3. Town of Littleton: Stormwater Infrastructure

Notice of Intent

Littleton, Massachusetts

September 2018

Tighe&Bond
Engineers | Environmental Specialists

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

VIA EMAIL

March 5, 2019

Paul Glavey
Board of Selectmen Chair

And;

Chris Stoddard
Director of Public Works
39 Ayer Road
Littleton, MA. 01460
cstoddard@littletonma.org

Re: National Pollutant Discharge Elimination System Permit ID #: MAR041204, Town of Littleton

Dear Chris Stoddard:

The 2016 NPDES General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts (MS4 General Permit) is a jointly issued EPA-MassDEP permit. Your Notice of Intent (NOI) for coverage under this MS4 General Permit has been reviewed by EPA and appears to be complete. You are hereby granted authorization by EPA and MassDEP to discharge stormwater from your MS4 in accordance with the applicable terms and conditions of the MS4 General Permit, including all relevant and applicable Appendices. This authorization to discharge expires at midnight on **June 30, 2022.**

For those permittees that certified Endangered Species Act eligibility under Criterion C in their NOI, this authorization letter also serves as EPA's concurrence with your determination that your discharges will have no effect on the listed species present in your action area, based on the information provided in your NOI.

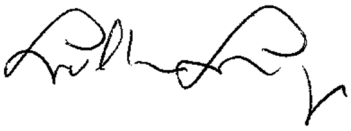
As a reminder, your first annual report is due by **September 30, 2019** for the reporting period from May 1, 2018 through June 30, 2019.

Information about the permit and available resources can be found on our website: https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit. Should you have any questions regarding this permit please contact Newton Tedder at tedder.newton@epa.gov or (617) 918-1038.

Sincerely,

Thelma Murphy, Chief
Stormwater and Construction Permits Section
Office of Ecosystem Protection
United States Environmental Protection Agency, Region 1

and;



Lealdon Langley, Director
Wetlands and Wastewater Program
Bureau of Water Resources
Massachusetts Department of Environmental Protection

Appendix B

Summary of 2003 and 2016 General Permit BMPs

Appendix B
Summary of 2003 and 2016 General Permit BMPs

BMPs identified in the 2003 General Permit NOI have evolved over the permit term due to staff changes and Stormwater Program modifications. The intent of the 2003 BMPs are being met under the following proposed 2016 General Permit BMPs (2003 BMPS current as of 2018 Annual Report):

2003 General Permit BMP		2016 General Permit BMP
1A	Stormwater Flyer for Residents	1A
1B	Stormwater Lesson Plan for Fifth Graders	1A
1C	Stormwater Flyer for Community Businesses	1B
1D	Stormwater Media Campaign	1A-1D
1E	Stormwater Video	1A-1D
1F	Littleton-Specific Stormwater Flyers	1A-1D
1G	Community Education: Hazardous Waste Day and Recycling advertised	1A
1H	Business Education	1B
1I	Stormwater Flyer for Agriculture	1A and 1B
1K	Newsletter / Newspaper Articles	1A and 1B
1K	Stormwater Info on Town Website	1A-1D
2A	Stormwater Traveling Display	1A-1D
2B	Poster Contest for Fifth Graders	1A and 2B
2C	Community Clean Up Day	2B
2D	Stormwater Summit Event	2B
2E	Intermunicipal Coordination	2B and 3F
2F	Annual Meeting Regarding Stormwater Management Program	2A and 2B
2G	Involve Watershed Groups: Clean Lakes Committee, Spectacle, Mill, Long, & Forge Ponds	2A and 2B
2H	Involve Children's groups (such as 4H, scouts)	2B
3A	Illicit Discharge Bylaw / Regulatory Mechanism	3A
3B	Storm Drain Map	3C
3C	Illicit Discharge Detection and Elimination Plan	3D
3D	Illicit Discharge Education for General Public & Businesses	1A and 1B
3E	Illicit Discharge Education for Municipal Employees	3F
4A	Construction Site Runoff Bylaw / Regulatory Mechanism	4A
4B	BMPs for Construction Site Erosion, Sediment, and Waste Controls	4B
4C	Construction Site Plan Review Procedures	4B
4D	Construction Site Inspection and Enforcement Procedures	4B
4E	Response to Public – "Stormwater Hotline"	1A and 2B

Appendix B
Summary of 2003 and 2016 General Permit BMPs

2003 General Permit BMP		2016 General Permit BMP
5A	Post-Construction Site Runoff Bylaw / Regulatory Mechanism	5A
5B	Choose Structural and Non-Structural BMPs	5A
5C	Long-Term BMP Operation and Maintenance Procedures	5A and 6B
5D	Structural BMP Implementation Procedures	5A and 6D-4
6A	Employee Training to Prevent/Reduce Stormwater Pollution	3F
6B	Maintenance/Inspection of Storm Sewers and Structural/Non Structural Controls	6B and 6D-4
6C	Pollutant Source Reduction / Elimination from Municipal Facilities & Activities	6A-6D
6D	Waste Disposal Procedures from Storm Sewers & Municipal Facilities/Activities	6A-6D
6E	Reduction of Sand in De-icing Operations	6D-3

Appendix C

Endangered Species Act Eligibility Criteria Documentation

Endangered Species Act Eligibility Certification

TO: Town of Littleton Stormwater Management Program Files

FROM: Tighe & Bond

COPY: Chris Stoddard, P.E., DPW Director

DATE: December 6, 2018

Tighe & Bond has completed the National Endangered Species Eligibility Determination screening process in accordance with Part 1.9.1 and Appendix C of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A of this memorandum), effective July 1, 2018, and determined that the **Town of Littleton** meets **Criterion C**, where informal consultation with U.S. Fish and Wildlife Service (USFWS) resulted in a finding that the stormwater discharges and discharge related activities will have "no affect" on listed species or critical habitat.

Tighe & Bond followed EPA's screening process required by the 2016 Small MS4 General Permit as follows:

Tighe & Bond went to the USFWS Information for Planning and Consultation (IPaC) website[1] and requested an Official Species List from the USFWS New England Ecological Services Field Office, included in Attachment B to this memorandum. The Official Species List for Littleton includes the following species that may occur or could potentially be affected by activities in the Town:

- Small Whorled Pogonia, and
- Northern Long-eared Bat.

The Official Species List documents that there are no critical habitats in Littleton.

Tighe & Bond then went to the USFWS New England Field Office website for Endangered Species Reviews/Consultations[2] and selected the Massachusetts state list[3] to review which Towns have federally-listed species. A copy of the list of Federally Listed Endangered and Threatened Species in Massachusetts is included in Attachment C to this memorandum. Based on review of this list, in Middlesex County **the Small Whorled Pogonia is listed only in the Town of Groton** and the Northern Long-eared Bat is listed statewide.

Tighe & Bond then reviewed Step 1 Part B of the USFWS endangered species consultation, and visited the Massachusetts Natural Heritage and Endangered Species Program (NHESP) species information and conservation website about the Northern Long-eared Bat[4]. The NHESP website included a map showing the known locations of the Northern Long-eared Bat within Massachusetts. Attachment D includes a map showing **there are no roost trees or hibernating locations within Littleton**.

[1] http://ecos.fws.gov/ipac/
[2] https://www.fws.gov/newengland/EndangeredSpec-Consultation_Project_Review.htm
[3] https://www.fws.gov/newengland/pdfs/MA%20species%20by%20town.pdf
[4] http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/rare-mammals/northern-long-eared-bat.html

Based on the results of the NHESP website review, Tighe & Bond determined there is no potential habitat for any listed endangered species within the action area and therefore **no further coordination is required with the USFWS**. Attachment E provides the results of Tighe & Bond's informal consultation on behalf of the Town of Littleton with USFWS "no species present" letter that states "no species are known to occur in the project area."

Step 1 – Determine if you can meet USFWS Criterion A

"USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC."

No, the Town of Littleton's IPaC action area contains the Northern Long-eared Bat and Small Whorled Pogonia.

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

"USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer "Yes" to **all** of the following questions:

1) Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?

   Yes, the Town of Littleton's action area may contain the Small Whorled Pogonia.

2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities "may affect" or are "not likely to adversely affect" listed species or critical habitat?"

   No, based on review of the list of Federally Listed Endangered and Threatened Species in Massachusetts, the Small Whorled Pogonia is listed only in Groton and not known to be present in Littleton (see discussion above).

Step 3 – Determine if You Can Meet Eligibility USFWS Criteria C

"You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer "Yes" to both of the following questions:

1) Does your action area contain one or more of the following species: Northern Long-eared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and does not contain any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?

   Yes, the Town of Littleton's action area contains the Northern Long-eared Bat and Small Whorled Pogonia, but none of the other subsequent species.

2) Did the assessment of your discharge and discharge related activities indicate that there would be "no affect" on listed species or critical habitat and EOA provided concurrence with your determination?

   Yes, based on review of USFWS and NHESP documentation on the Northern Long-eared Bat and Small Whorled Pogonia, it was determined that the Town's discharges and discharge related activities will have "no affect" on listed species or critical habitat (see discussion above).

3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity "may affect" or is "not likely to adversely affect" listed species or critical habitat under the jurisdiction of the USFWS."

   Yes, during the course of the permit term the Town of Littleton agrees to conduct an endangered species screening for the proposed site and contact USFWS if they plan to install a structural BMP not identified in the NOI.

Tighe & Bond's review of questions under Step 3 resulted in "Yes" and thereby we determined the Town of Littleton's action area meets the endangered species' eligibility requirements included in Criterion C.

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Attachment A

Appendix C of EPA’s 2016 Small MS4 General Permit

APPENDIX C
ENDANGERED SPECIES GUIDANCE

A. Background

In order to meet its obligations under the Clean Water Act and the Endangered Species Act (ESA), and to promote the goals of those Acts, the Environmental Protection Agency (EPA) is seeking to ensure the activities regulated by this general permit do not adversely affect endangered and threatened species or critical habitat. Applicants applying for permit coverage must assess the impacts of their stormwater discharges and discharge-related activities on federally listed endangered and threatened species ("listed species") and designated critical habitat ("critical habitat") to ensure that those goals are met. Prior to obtaining general permit coverage, applicants must meet the ESA eligibility provisions of this permit by following the steps in this Appendix[1].

Applicants also have an independent ESA obligation to ensure that their activities do not result in any prohibited "take" of listed species[12]. The term "Take" is used in the ESA to include harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering. "Harass" is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Many of the measures required in this general permit and in these instructions to protect species may also assist in ensuring that the applicant's activities do not result in a prohibited take of species in violation of section 9 of the ESA. If the applicant has plans or activities in an area where endangered and threatened species are located, they may wish to ensure that they are protected from potential take liability under ESA section 9 by obtaining an ESA section 10 permit or by requesting formal consultation under ESA section 7. Applicants that are unsure whether to pursue a section 10 permit or a section 7 consultation for takings protection should confer with the appropriate United States Fish and Wildlife Service (USFWS) office or the National Marine Fisheries Service (NMFS), (jointly the Services).

Currently, there are 20 species of concern for applicants applying for permit coverage, namely the Dwarf wedgemussel *(Alasmidonta heterodon)*, Northeastern bulrush (*Scirpus ancistrochaetus*), Sandplain gerardia *(Agalinis acuta)*, Piping Plover (*Charadrius melodus*), Roseate Tern (*Sterna dougallii*), Northern Red-bellied cooter (*Pseudemys rubriventis)*, Bog Turtle (*Glyptemys muhlenbergii*), Small whorled Pogonia (*Isotria medeoloides*), Puritan tiger beetle (*Cicindela puritana*), American burying beetle (*Nicrophorus americanus*), Northeastern beach tiger beetle (*Cicindela dorsalis*), Northern Long-eared Bat *(Myotis septentriolis)*Atlantic Sturgeon *(Acipenser oxyrinchus*), Shortnose Sturgeon *(Acipenser brevirostrum)*, North Atlantic Right Whale (*Eubalaena glacialis*) Humpback Whale *(Megaptera novaengliae)*, Fin Whale (*Balaenoptera physalus)*, Kemp's Ridley Sea Turtle *(Lepidochelys kempii)*, Loggerhead Sea Turtle *(Caretta caretta)*, Leatherback Sea Turtle *(Dermochelys coriacea)*, and the Green Turtle *(Chelonia*

[1] EPA strongly encourages applicants to begin this process at the earliest possible stage to ensure the notification requirements for general permit coverage are complete upon Notice of Intent (NOI) submission.
[2] Section 9 of the ESA prohibits any person from "taking" a listed species (e.g. harassing or harming it) unless: (1) the taking is authorized through an "incidental take statement" as part of completion of formal consultation according to ESA section 7; (2) where an incidental take permit is obtained under ESA section 10 (which requires the development of a habitat conversion plan; or (3) where otherwise authorized or exempted under the ESA. This prohibition applies to all entities including private individuals, businesses, and governments.

mydas). The Atlantic Sturgeon, Shortnose Sturgeon, North Atlantic Right Whale, Humpback Whale, Fin Whale, Loggerhead Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle and Green Turtle are listed under the jurisdiction of NMFS. The Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle are listed under the jurisdiction of the U.S. Fish and Wildlife Service.

Any applicant seeking coverage under this general permit, must consult with the Services where appropriate. When listed species are present, permit coverage is only available if EPA determines, or the applicant determines and EPA concurs, that the discharge or discharge related activities will have "no affect" on the listed species or critical habitat, or the applicant or EPA determines that the discharge or discharge related activities are "not likely to adversely affect" listed species or critical habitat and formal or informal consultation with the Services has been concluded and results in written concurrence by the Services that the discharge is "not likely to adversely affect" an endangered or threatened species or critical habitat.

EPA may designate the applicants as non-Federal representatives for the general permit for the purpose of carrying out formal or informal consultation with the Services (See 50 CFR §402.08 and §402.13). By terms of this permit, EPA has automatically designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the U.S. Fish and Wildlife Service. EPA has not designated operators as non-Federal representatives for the purpose of conducting formal or informal consultation with the National Marine Fisheries Service. EPA has determined that discharges from MS4s are not likely to adversely affect listed species or critical habitat under the jurisdiction of the National Marine Fisheries Service. EPA has initiated informal consultation with the National Marine Fisheries Service on behalf of all permittees and no further action is required by permittees in order to fulfill ESA requirements of this permit related to species under the jurisdiction of NMFS

B. The U.S. Fish and Wildlife Service ESA Eligibility Process

Before submitting a notice of intent (NOI) for coverage by this permit, applicants must determine whether they meet the ESA eligibility criteria by following the steps in Section B of this Appendix. Applicants that cannot meet the eligibility criteria in Section B must apply for an individual permit.

The USFWS ESA eligibility requirements of this permit relating to the Dwarf wedgemussel, Northeastern bulrush, Sandplain gerardia, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Small whorled Pogonia, Roseate Tern, Puritan tiger beetle, Northeastern beach tiger beetle, Northern Long-eared Bat and American burying beetle may be satisfied by documenting that one of the following criteria has been met:

USFWS Criterion A: No endangered or threatened species or critical habitat are in proximity to the stormwater discharges or discharge related activities.

USFWS Criterion B: In the course of formal or informal consultation with the Fish and Wildlife Service, under section 7 of the ESA, the consultation resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the stormwater discharges and

discharge related activities are "not likely to adversely affect" listed species or critical habitat (informal consultation).

USFWS Criterion C: Using the best scientific and commercial data available, the effect of the stormwater discharge and discharge related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the applicant and affirmed by EPA, that the stormwater discharges and discharge related activities will have "no affect" on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.

1. The Steps to Determine if the USFWS ESA Eligibility Criteria Can Be Met

To determine eligibility, you must assess the potential effects of your known stormwater discharges and discharge related activities on listed species or critical habitat, PRIOR to completing and submitting a Notice of Intent (NOI). You must follow the steps outlined below and document the results of your eligibility determination.

Step 1 – Determine if you can meet USFWS Criterion A

USFWS Criterion A: You can certify eligibility, according to USFWS Criterion A, for coverage by this permit if, upon completing the Information, Planning, and Conservation (IPaC) online system process, you printed and saved the preliminary determination which indicated that federally listed species or designated critical habitats are not present in the action area. See Attachment 1 to Appendix C for instructions on how to use IPaC.

If you have met USFWS Criterion A skip to Step # 4.

If you have not met USFWS Criterion A, go to Step # 2.

Step 2 – Determine if You Can Meet Eligibility USFWS Criteria B

USFWS Criterion B: You can certify eligibility according to USFWS Criteria B for coverage by this permit if you answer "Yes" to **all** of the following questions:

1) Does your action area contain one or more of the following species: Sandplain gerardia, Small whorled Pogonia, American burying beetle, Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?
   AND
2) Did your assessment of the discharge and discharge related activities indicate that the discharge or discharge related activities "may affect" or are "not likely to adversely affect" listed species or critical habitat?
   AND
3) Did you contact the USFWS and did the formal or informal consultation result in either a "no jeopardy" opinion by the USFWS (for formal consultation) or concurrence by the

USFWS that your activities would be "not likely to adversely affect" listed species or critical habitat (for informal consultation)?
AND

4) Do you agree to implement all measures upon which the consultation was conditioned?
5) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will re-initiate informal or formal consultation with USFWS as necessary?

Use the guidance below Step 3 to understand effects determination and to answer these questions.

If you answered "Yes" to all four questions above, you have met eligibility USFWS Criteria B. Skip to Step 4.

If you answered "No" to any of the four questions above, go to Step 3.

Step 3 – Determine if You Can Meet Eligibility USFWS Criterion C

USFWS Criterion C: You can certify eligibility according to USFWS Criterion C for coverage by this permit if you answer "Yes" to both of the following question:

1) Does your action area contain one or more of the following species: Northern Long-eared Bat, Sandplain gerardia, Small whorled Pogonia and/or American burying beetle and **does not** contain one any following species: Dwarf wedgemussel, Northeastern bulrush, Piping Plover, Northern Red-bellied cooter, Bog Turtle, Roseate Tern, Puritan tiger beetle, and Northeastern beach tiger beetle?[3]
OR
2) Did the assessment of your discharge and discharge related activities and indicate that there would be "no affect" on listed species or critical habitat and EPA provided concurrence with your determination?
3) Do you agree that if, during the course of the permit term, you plan to install a structural BMP not identified in the NOI that you will to conduct an endangered species screening for the proposed site and contact the USFWS if you determine that the new activity "may affect" or is "not likely to adversely affect" listed species or critical habitat under the jurisdiction of the USFWS.

Use the guidance below to understand effects determination and to answer these questions.

If you answered "Yes" to both the question above, you have met eligibility USFWS Criterion C. Go to Step 4.

If you answered "No" to either of the questions above, you are not eligible for coverage by this permit. You must submit an application for an individual permit for your stormwater discharges. (See 40 CFR 122.21).

USFWS Effects Determination Guidance:

If you are unable to certify eligibility under USFWS Criterion A, you must assess whether your stormwater discharges and discharge-related activities "may affect", will have "no affect" or are "not likely to adversely affect" listed species or critical habitat. "Discharge-related activities" include: activities which cause, contribute to, or result in point source stormwater pollutant discharges; and measures to provide treatment for stormwater discharges including the siting, construction and operational procedures to control, reduce or prevent water pollution. Please be aware that no protection from incidental take liability is provided under this criterion.

The scope of effects to consider will vary with each system. If you are having difficulty in determining whether your system is likely to cause adverse effects to a listed species or critical habitat, you should contact the USFWS for assistance. In order to complete the determination of effects it may be necessary to follow the formal or informal consultation procedures in section 7 of the ESA.

Upon completion of your assessment, document the results of your effects determination. If your results indicate that stormwater discharges or discharge related activities will have "no affect" on threatened or endangered species or critical habitat and EPA concurs with your determination, you are eligible under USFWS Criterion C of this Appendix. Your determination may be based on measures that you implement to avoid, eliminate, or minimized adverse effects.

If the determination is "May affect" or "not likely to adversely affect" you must contact the USFWS to discuss your findings and measures you could implement to avoid, eliminate, or minimize adverse effects. If you and the USFWS reach agreement on measures to avoid adverse effects, you are eligible under USFWS Criterion B. Any terms and/or conditions to protect listed species and critical habitat that you relied on in order to complete an adverse effects determination, must be incorporated into your Storm Water Management Program (required by this permit) and implemented in order to maintain permit eligibility.

If endangered species issues cannot be resolved: If you cannot reach agreement with the USFWS on measures to avoid or eliminate adverse effects then you are not eligible for coverage under this permit. You must seek coverage under an individual permit.

Effects from stormwater discharges and discharge-related activities which could pose an adverse effect include:

- *Hydrological:* Stormwater discharges may cause siltation, sedimentation, or induce other changes in receiving waters such as temperature, salinity or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.
- *Habitat:* Excavation, site development, grading and other surface disturbance activities, including the installation or placement of treatment equipment may adversely affect listed species or their habitat. Stormwater from the small MS4 may inundate a listed species habitat.

- *Toxicity:* In some cases, pollutants in the stormwater may have toxic effects on listed species.

Step 4 - Document Results of the Eligibility Determination

Once the USFWS ESA eligibility requirements have been met, you shall include documentation of USFWS ESA eligibility in the Storm Water Management Program required by the permit. Documentation for the various eligibility criteria are as follows:

- USFWS Criterion A: A copy of the IPaC generated preliminary determination letter indicating that no listed species or critical habitat is present within your action area. You shall also include a statement on how you determined that no listed species or critical habitat are in proximity to your stormwater system or discharges.
- USFWS Criterion B: A dated copy of the USFWS letter of concurrence on a finding of "no jeopardy" (for formal consultation) or "not likely to adversely affect" (for informal consultation) regarding the ESA section 7 consultation.
- USFWS Criterion C: A dated copy of the EPA concurrence with the operator's determination that the stormwater discharges and discharge-related activities will have "no affect" on listed species or critical habitat.

C. Submittal of Notice of Intent

Once the ESA eligibility requirements of Part C of this Appendix have been metyoumay submit the Notice of Intent indicating which Criterion you have met to be eligible for permit coverage. Signature and submittal of the NOI constitutes your certification, under penalty of law, of eligibility for permit coverage under 40 CFR 122.21.

D. Duty to Implement Terms and Conditions upon which Eligibility was Determined

You must comply with any terms and conditions imposed under the ESA eligibility requirements to ensure that your stormwater discharges and discharge related activities do not pose adverse effects or jeopardy to listed species and/or critical habitat. You must incorporate such terms and conditions into your Storm Water Management Program as required by this permit. If the ESA eligibility requirements of this permit cannot be met, then you may not receive coverage under this permit and must apply for an individual permit.

E. Services Information

United States Fish and Wildlife Service Office

National websites for Endangered Species Information:
Endangered Species home page: http://endangered.fws.gov
ESA Section 7 Consultations: http://endangered.fws.gov/consultation/index.html
Information, Planning, and Conservation System (IPAC): http://ecos.fws.gov/ipac/

U.S. FWS – Region 5
Supervisor

New England Field Office
U.S. Fish and Wildlife Services
70 Commercial Street, Suite 300
Concord, NH 03301

Natural Heritage Network

The Natural Heritage Network comprises 75 independent heritage program organizations located in all 50 states, 10 Canadian provinces, and 12 countries and territories located throughout Latin America and the Caribbean. These programs gather, manage, and distribute detailed information about the biological diversity found within their jurisdictions. Developers, businesses, and public agencies use natural heritage information to comply with environmental laws and to improve the environmental sensitivity of economic development projects. Local governments use the information to aid in land use planning.

The Natural Heritage Network is overseen by NatureServe, the Network's parent organization, and is accessible on-line at: http://www.natureserve.org/nhp/us_programs.htm, which provides websites and other access to a large number of specific biodiversity centers.

U.S. Fish and Wildlife IPaC system instructions

Use the following protocol to determine if any federally listed species or designated critical habitats under USFWS jurisdiction exist in your action area:

Enter your project specific information into the "Initial Project Scoping" feature of the Information, Planning, and Conservation (IPaC) system mapping tool, which can be found at the following location:

http://ecos.fws.gov/ipac/

a. Indicate the action area[1] for the MS4 by either:
    a. Drawing the boundary on the map or by uploading a shapefile.
    Select "Continue"

c. Click on the "SEE RESOURCE LIST" button and on the next screen you can export a trust resources list.This will provided a list of natural resources of concern, which will include an Endangered Species Act Species list. You may also request an official species list under "REGULATORY DOCUMENTS" Save copies and retain for your records

[1] The action area is defined by regulation as all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action (50 CFR §402.02). This analysis is not limited to the "footprint" of the action nor is it limited by the Federal agency's authority. Rather, it is a biological determination of the reach of the proposed action on listed species. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

The documentation used by a Federal action agency to initiate consultation should contain a description of the action area as defined in the Services' regulations and explained in the Services' consultation handbook. If the Services determine that the action area as defined by the action agency is incorrect, the Services should discuss their rationale with the agency or applicant, as appropriate. Reaching agreement on the description of the action area is desirable but ultimately the Services can only consult when an action area is defined properly under the regulations.

For storm water discharges or discharge related activities, the action area should encompass the following:

- The immediate vicinity of, or nearby, the point of discharge into receiving waters.
- The path or immediate area through which or over which storm water flows from the municipality to the point of discharge into the receiving water. This includes areas in the receiving water downstream from the point of discharge.
- Areas that may be impacted by construction or repair activities. This extends as far as effects related to noise (from construction equipment, power tools, etc.) and light (if work is performed at night) may reach.

The action area will vary with the size and location of the outfall pipe, the nature and quantity of the storm water discharges, and the type of receiving waters, among other factors.

Attachment B

Littleton IPaC Official Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To:
Consultation Code: 05E1NE00-2018-SLI-2863
Event Code: 05E1NE00-2018-E-06710
Project Name: Littleton NOI

August 23, 2018

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-2863

Event Code: 05E1NE00-2018-E-06710

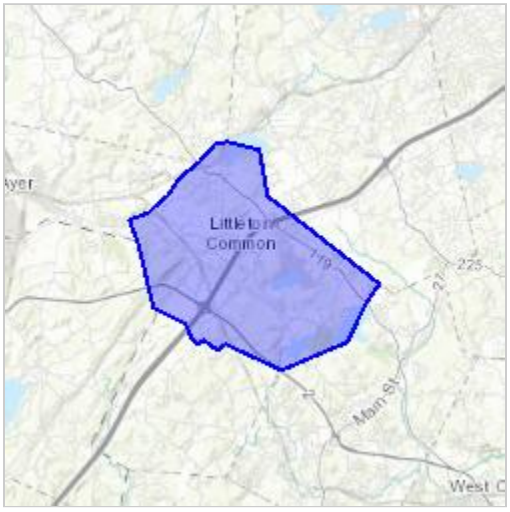
Project Name: Littleton NOI

Project Type: ** OTHER **

Project Description: This project is applying for coverage under the 2016 small municipal separate storm sewer systems (MS4) General Permit. The project consists of the entire area of the Town of Littleton's MS4 that falls within the urbanized area of the town. Based on EPA's 2016 MS4 General Permit, Littleton must apply for permit coverage for the Town's MS4 stormwater discharges and assess the impacts of the stormwater discharges and discharge-related activities on endangered and threatened species, and designated critical habitats that fall within the MS4.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/42.53839807659227N71.49135324208126W



Counties: Middlesex, MA | Worcester, MA

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia *Isotria medeoloides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Attachment C

Federally Listed Endangered and Threatened Species in Massachusetts

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Taunton
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Gloucester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague, Warwick
	Dwarf wedgemussel	Endangered	Mill River	Whately
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hatfield, Amherst and Northampton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied Cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, Wareham, Halifax, and Pembroke
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Suffolk	Piping Plover	Threatened	Coastal Beaches	Revere, Winthrop
	Red Knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal Towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

[1]Migratory only, scattered along the coast in small numbers

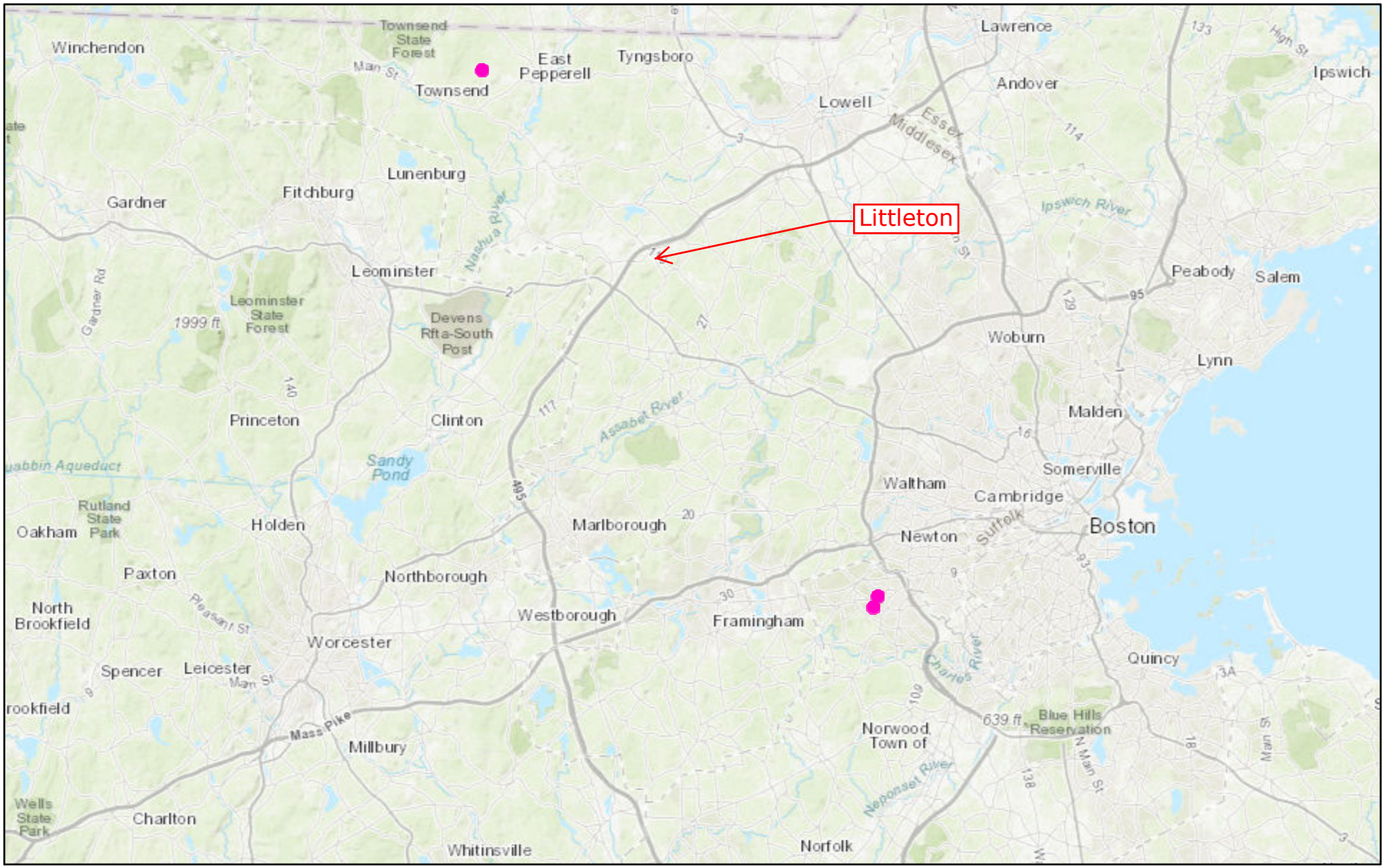
-Eastern cougar and gray wolf are considered extirpated in Massachusetts.
-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
-Critical habitat for the Northern Red-bellied Cooter is present in Plymouth County.

Updated 02/05/2016

Attachment D

Northern Long-eared Bat Location Map

Northern Long-eared Bat Locations



August 23, 2018

Statewide NLEB Symbology

- Hibernaculum
- MA Northern Long-eared Bat Winter Hibernacula (with ¼ mile buffer)

1:577,791

0 3.5 7 14 mi

0 5 10 20 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Attachment E

U.S. Fish and Wildlife Review Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

January 31, 2019

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm (accessed January 2019)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact David Simmons of this office at 603-227-6425 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

Appendix D

National Historic Preservation Act Eligibility Criteria Documentation

National Historic Preservation Act Eligibility Certification

TO: Town of Littleton Stormwater Management Program Files

FROM: Tighe & Bond

COPY: Chris Stoddard, P.E., DPW Director

DATE: August 23, 2018

Tighe & Bond has completed the National Historic Preservation Act Eligibility Determination screening process in accordance with Part 1.9.2 and Appendix D of U.S. EPA's National Pollutant Discharge Elimination System (NPDES) General Permits for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) in Massachusetts (see Attachment A of this memorandum), effective July 1, 2018, and determined that the **Town of Littleton** meets **Criterion A: The discharges do not have the potential to cause effects on historic properties.**

Tighe & Bond followed the screening process included in Appendix D and has determined Littleton is an existing facility authorized by the previous permit and therefore meets Criterion A (see Question 1 in Appendix D of the Permit) and is not, as part of developing and submitting the Notice of Intent for permit coverage, undertaking any activity involving subsurface land disturbance less than an acre. Based on this screening process, the Town of Littleton's stormwater discharges, allowable non-stormwater discharges, and stormwater discharge-related activities will not have an effect on a property that is listed or eligible for listing on the National Register of Historic Properties (NRHP) and no further action is necessary at this time.

Attachment B to this memorandum includes a list of the federal- and state-listed historic areas, buildings, burial grounds, objects, and structures downloaded from the Massachusetts Cultural Resource Information System (MACRIS) that is current as of August 23, 2018. If the Town undertakes construction on or around a property that is listed or eligible for listing, the Town will coordinate with the State Historic Preservation Officer (SHPO) (i.e. the Massachusetts Historical Commission) by submitting a Project Notification Form and associated documentation for the project. As applicable for each project, the Town will implement measures to avoid or minimize adverse impacts on places listed, or eligible for listing, on the NRHP, including any conditions imposed by the SHPO. If the Town fails to document and implement such measures, those discharges are ineligible for coverage under EPA's Small MS4 General Permit.

Attachment A

Appendix D of EPA’s 2016 Small MS4 General Permit

Appendix D
National Historic Preservation Act Guidance

Background

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of Federal "undertakings" on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. The term federal "undertaking" is defined in the NHPA regulations to include a project, activity, or program of a federal agency including those carried out by or on behalf of a federal agency, those carried out with federal financial assistance, and those requiring a federal permit, license or approval. See 36 CFR 800.16(y). Historic properties are defined in the NHPA regulations to include prehistoric or historic districts, sites, buildings, structures, or objects that are included in, or are eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. See 36 CFR 800.16(1).

EPA's issuance of a National Pollutant Discharge Elimination System (NPDES) General Permit is a federal undertaking within the meaning of the NHPA regulations and EPA has determined that the activities to be carried out under the general permit require review and consideration, in order to be in compliance with the federal historic preservation laws and regulations. Although individual submissions for authorization under the general permit do not constitute separate federal undertakings, the screening processes provides an appropriate site-specific means of addressing historic property issues in connection with EPA's issuance of the permit. To address any issues relating to historic properties in connection with the issuance of this permit, EPA has included a screening process for applicants to identify whether properties listed or eligible for listing on the National Register of Historic Places are within the path of their discharges or discharge-related activities (including treatment systems or any BMPs relating to the discharge or treatment process) covered by this permit.

Applicants seeking authorization under this general permit must comply with applicable, State, Tribal, and local laws concerning the protection of historic properties and places and may be required to coordinate with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO) and others regarding effects of their discharges on historic properties.

Activities with No Potential to Have an Effect on Historic Properties

A determination that a federal undertaking has no potential to have an effect on historic properties fulfills an agency's obligations under NHPA. EPA has reason to believe that the vast majority of activities authorized under this general permit will have no potential effects on historic properties. This permit typically authorizes discharges from existing facilities and requires control of the pollutants discharged from the facility. EPA does not anticipate effects on historic properties from the pollutants in the authorized discharges. Thus, to the extent EPA's issuance of this general permit authorizes discharges of such constituents, confined to existing channels, outfalls or natural drainage areas, the permitting action does not have the potential to cause effects on historical properties.

In addition, the overwhelming majority of sources covered under this permit will be facilities that are seeking renewal of previous permit authorization. These existing dischargers should have already addressed NHPA issues in the previous general permit as they were required to certify that they were either not affecting historic properties or they had obtained written agreement from

the applicable SHPO or THPO regarding methods of mitigating potential impacts. To the extent this permit authorizes renewal of prior coverage without relevant changes in operations the discharge has no potential to have an effect on historic properties.

Activities with Potential to Have an Effect on Historic Properties

EPA believes this permit may have some potential to have an effect on historic properties the applicant undertakes the construction and/or installation of control measures that involve subsurface disturbance that involves less than 1 acre of land. (Ground disturbances of 1 acre or more require coverage under the Construction General Permit.) Where there is disturbance of land through the construction and/or installation of control measures, there is a possibility that artifacts, records, or remains associated with historic properties could be impacted. Therefore, if the applicant is establishing new or altering existing control measures to manage their discharge that will involve subsurface ground disturbance of less than 1 acre, they will need to ensure (1) that historic properties will not be impacted by their activities or (2) that they are in compliance with a written agreement with the SHPO, THPO, or other tribal representative that outlines all measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Examples of Control Measures Which Involve Subsurface Disturbance

The type of control measures that are presumptively expected to cause subsurface ground disturbance include:

- Dikes
- Berms
- Catch basins, drainage inlets
- Ponds, bioretention areas
- Ditches, trenches, channels, swales
- Culverts, pipes
- Land manipulation; contouring, sloping, and grading
- Perimeter Drains
- Installation of manufactured treatment devices

EPA cautions applicants that this list is non-inclusive. Other control measures that involve earth disturbing activities that are not on this list must also be examined for the potential to affect historic properties.

Certification

Upon completion of this screening process the applicant shall certify eligibility for this permit using one of the following criteria on their Notice of Intent for permit coverage:

> **Criterion A**: The discharges do not have the potential to cause effects on historic properties.

Criterion B: A historic survey was conducted. The survey concluded that no historic properties are present. Discharges do not have the potential to cause effects on historic properties.

Criterion C: The discharges and discharge related activities have the potential to have an effect on historic properties, and the applicant has obtained and is in compliance with a written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the applicant will carry out to mitigate or prevent any adverse effects on historic properties.

Authorization under the general permit is available only if the applicant certifies and documents permit eligibility using one of the eligibility criteria listed above. Small MS4s that cannot meet any of the eligibility criteria in above must apply for an individual permit.

Screening Process

Applicants or their consultant need to answer the questions and follow the appropriate procedures below to assist EPA in compliance with 36 CFR 800.

Question 1*:* Is the facility an existing facility authorized by the previous permit or a new facility and the applicant is not undertaking any activity involving subsurface land disturbance less than an acre?

YES - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.
The applicant should certify eligibility for this permit using Criterion A on their Notice of Intent for permit coverage. The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has "no potential to cause effects" (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

NO- Go to Question 2.

Question 2*:* Is the property listed in the National Register of Historic Places or have prior surveys or disturbances revealed the existence of a historic property or artifacts?

NO - The applicant should certify that fact in writing and file the statement with the EPA. This certification must be maintained as part of the records associated with the permit.
The applicant should certify eligibility for this permit using Criterion B on their Notice of Intent for permit coverage. The applicant does not need to contact the state Historic Commission. Based on that statement, EPA will document that the project has "no potential to cause effects" (36 CFR 800.3(a)(1)). There are no further obligations under the Section 106 regulations.

YES - The applicant or their consultant should prepare a complete information submittal to the SHPO. The submittal consists of:

- Completed Project Notification Form- forms available at http://www.sec.state.ma.us/mhc/mhcform/formidx.htm;

- USGS map section with the actual project boundaries clearly indicated; and
- Scaled project plans showing existing and proposed conditions.

(1) Please note that the SHPO does not accept email for review. Please mail a paper copy of your submittal (Certified Mail, Return Receipt Requested) or deliver a paper copy of your submittal (and obtain a receipt) to:

State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Blvd.
Boston MA 02125.

(2) Provide a copy of your submittal and the proof of MHC delivery showing the date MHC received your submittal to:

NPDES Permit Branch Chief
US EPA Region 1 (OEP06-1)
5 Post Office Square, Suite 100
Boston MA 02109-3912.

The SHPO will comment within thirty (30) days of receipt of complete submittals, and may ask for additional information. Consultation, as appropriate, will include EPA, the SHPO and other consulting parties (which includes the applicant). The steps in the federal regulations (36 CFR 800.2 to 800.6, etc.) will proceed as necessary to conclude the Section 106 review for the undertaking. **The applicant should certify eligibility for this permit using Criterion C on their Notice of Intent for permit coverage.**

Attachment B

MACRIS list of federal- and state-listed historic areas, buildings, burial grounds, objects, and structures

Massachusetts Cultural Resource Information System

MACRIS

MACRIS Search Results

Search Criteria: Town(s): Littleton; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
LIT.A	Whitcomb Farm		Littleton	
LIT.B	Pingrey - Sanderson Farm		Littleton	
LIT.C	Littleton Center		Littleton	
LIT.D	Littleton Common		Littleton	
LIT.E	Conant, Houghton and Company Worker Housing		Littleton	
LIT.F	Old Burying Ground		Littleton	
LIT.G	Littleton Depot		Littleton	
LIT.H	Pingryville		Littleton	
LIT.113	Conant, Houghton and Company Worker Housing	3 Adams St	Littleton	c 1919
LIT.114	Conant, Houghton and Company Worker Housing	5 Adams St	Littleton	c 1919
LIT.115	Conant, Houghton and Company Worker Housing	7 Adams St	Littleton	c 1919
LIT.116	Conant, Houghton and Company Worker Housing	8 Adams St	Littleton	r 1925
LIT.117	Conant, Houghton and Company Worker Housing	9 Adams St	Littleton	c 1919
LIT.118	Conant, Houghton and Company Worker Housing	10 Adams St	Littleton	r 1925
LIT.119	Conant, Houghton and Company Worker Housing	11 Adams St	Littleton	c 1919
LIT.120	Conant, Houghton and Company Worker Housing	14 Adams St	Littleton	r 1925
LIT.121	Conant, Houghton and Company Worker Housing	15 Adams St	Littleton	c 1919
LIT.122	Conant, Houghton and Company Worker Housing	16 Adams St	Littleton	r 1925
LIT.123	Conant, Houghton and Company Worker Housing	17 Adams St	Littleton	r 1925

Inv. No.	Property Name	Street	Town	Year
LIT.125	Conant, Houghton and Company Worker Housing	19 Adams St	Littleton	r 1925
LIT.126	Conant, Houghton and Company Worker Housing	20 Adams St	Littleton	r 1925
LIT.127	Conant, Houghton and Company Worker Housing	21 Adams St	Littleton	r 1925
LIT.128	Conant, Houghton and Company Worker Housing	22 Adams St	Littleton	r 1925
LIT.129	Conant, Houghton and Company Worker Housing	23-25 Adams St	Littleton	r 1925
LIT.130	Conant, Houghton and Company Worker Housing	24-26 Adams St	Littleton	r 1925
LIT.131	Conant, Houghton and Company Worker Housing	27 Adams St	Littleton	r 1925
LIT.132	Conant, Houghton and Company Worker Housing	28 Adams St	Littleton	r 1925
LIT.133	Conant, Houghton and Company Worker Housing	29 Adams St	Littleton	r 1925
LIT.134	Conant, Houghton and Company Worker Housing	30 Adams St	Littleton	r 1925
LIT.135	Conant, Houghton and Company Worker Housing	31 Adams St	Littleton	r 1925
LIT.136	Conant, Houghton and Company Worker Housing	32 Adams St	Littleton	r 1925
LIT.137	Conant, Houghton and Company Worker Housing	33 Adams St	Littleton	r 1925
LIT.138	Conant, Houghton and Company Worker Housing	34 Adams St	Littleton	c 1931
LIT.51		30 Beaver Brook Rd	Littleton	c 1830
LIT.27	Cogswell, Capt. Jeremiah House	46 Beaver Brook Rd	Littleton	r 1775
LIT.41	Keyes, Capt. Solomon House	31 Boxborough Rd	Littleton	c 1830
LIT.42	Keyes, Solomon Jr. House	38 Boxborough Rd	Littleton	c 1830
LIT.43	Hartwell, Cephas House	51 Boxborough Rd	Littleton	r 1820
LIT.176	Woodward, John House	2 Bruce St	Littleton	r 1825
LIT.177	Snow, Charles P. - Brown, Samuel Heywood House	5 Bruce St	Littleton	r 1840
LIT.1	Bulkeley, Peter - Bulkeley, Capt. Charles House	25 Bulkeley Rd	Littleton	c 1730
LIT.178	Conant, Samuel House	38 Fort Pond Hill Rd	Littleton	r 1850
LIT.4	Priest, Joseph House	Foster St	Littleton	c 1682
LIT.914	Fay Park	Foster St	Littleton	c 1917
LIT.52	Hopkins, Albert House	2 Foster St	Littleton	1908
LIT.53		6 Foster St	Littleton	c 1830

Inv. No.	Property Name	Street	Town	Year
LIT.54	Whitcomb, Allen House	10 Foster St	Littleton	c 1858
LIT.55	White, Rev. William H. House	14 Foster St	Littleton	c 1828
LIT.56	Littleton First Church Unitarian	19 Foster St	Littleton	1841
LIT.57	Littleton Town Hall	20 Foster St	Littleton	1950
LIT.58		23 Foster St	Littleton	r 1780
LIT.59	Titcomb, Walter House	27 Foster St	Littleton	c 1918
LIT.60	Whitcomb, Oliver House	31 Foster St	Littleton	c 1725
LIT.61	Prouty, Gardner House	32 Foster St	Littleton	1917
LIT.62	Fox, John Tavern	35 Foster St	Littleton	c 1700
LIT.63	Brown, Rev. William Channing House	36 Foster St	Littleton	1905
LIT.64	Priest, Roger A. House	39 Foster St	Littleton	1920
LIT.65		40 Foster St	Littleton	c 1790
LIT.66		43 Foster St	Littleton	c 1830
LIT.67		44 Foster St	Littleton	r 1880
LIT.68		45-47 Foster St	Littleton	r 1835
LIT.69		48 Foster St	Littleton	r 1865
LIT.70	Willard, Hannah House	51 Foster St	Littleton	1914
LIT.71		55 Foster St	Littleton	r 1820
LIT.72		59 Foster St	Littleton	1929
LIT.73		60 Foster St	Littleton	c 1912
LIT.74		63 Foster St	Littleton	c 1850
LIT.75		66 Foster St	Littleton	c 1863
LIT.76	Hoar, Dea. Oliver House	73 Foster St	Littleton	r 1780
LIT.12	Reed, Joseph Porter House	93 Foster St	Littleton	c 1829
LIT.179	Harwood, Joseph Alfred Farm Workers Housing	181 Foster St	Littleton	r 1750
LIT.180	Fletcher, Capt. Eleazer III House	193 Foster St	Littleton	r 1825
LIT.181	Hartwell, Daniel House	201 Foster St	Littleton	r 1750
LIT.182	Wood, Martin House	260 Foster St	Littleton	r 1825
LIT.183	South School	277 Foster St	Littleton	c 1831
LIT.30	Hartwell, Thomas - Goldsmith, John House	120 Goldsmith St	Littleton	r 1780
LIT.801	Powers - Reed Burying Ground	Great Rd	Littleton	1676
LIT.903	Great Road Bridge over B & M Railroad	Great Rd	Littleton	1928
LIT.17	Vinal, George W. - Jeffrey, Benjamin House	110 Great Rd	Littleton	c 1837
LIT.16	Indian Hill Farm	155 Great Rd	Littleton	r 1820
LIT.21	Powers, David House	171 Great Rd	Littleton	c 1748
LIT.22		180 Great Rd	Littleton	r 1750
LIT.148	Nashoba Valley Shopping Center	224 Great Rd	Littleton	c 1957
LIT.149	Herpy's Dairy	225 Great Rd	Littleton	1948

Inv. No.	Property Name	Street	Town	Year
LIT.150	Littleton Ford Dealership Showroom	235 Great Rd	Littleton	c 1955
LIT.151	Moore's Lumber Yard	244 Great Rd	Littleton	c 1957
LIT.152	Wilson Texaco Gas Station	245 Great Rd	Littleton	1951
LIT.175	Littleton Can Receiving Station	255 Great Rd	Littleton	
LIT.153	Littleton Egg Receiving Station	256 Great Rd	Littleton	1950
LIT.154	Northern Bank and Trust Company	265 Great Rd	Littleton	c 1960
LIT.155	Co-operative Bank	268-272 Great Rd	Littleton	c 1972
LIT.156	Sunoco Gas Station	277 Great Rd	Littleton	
LIT.157	Gerbi House	278 Great Rd	Littleton	1900
LIT.158		287 Great Rd	Littleton	c 1920
LIT.159	Harvard Trust Company Bank	288 Great Rd	Littleton	1959
LIT.160	Flower Wagon Florist	289 Great Rd	Littleton	c 1940
LIT.161		294 Great Rd	Littleton	1890
LIT.162		298 Great Rd	Littleton	c 1890
LIT.163	Houghton, Robert House	308 Great Rd	Littleton	c 1890
LIT.164	Fletcher, J. W. House	311 Great Rd	Littleton	c 1870
LIT.165		312 Great Rd	Littleton	
LIT.166	Littleton Baptist Church Parsonage	319 Great Rd	Littleton	c 1840
LIT.167	Littleton Motors	320 Great Rd	Littleton	1920
LIT.168	Smith's Store	325 Great Rd	Littleton	c 1870
LIT.44	Conant, Houghton and Company	410 Great Rd	Littleton	1880
LIT.45		474 Great Rd	Littleton	r 1820
LIT.46	Long Store, The	499-501 Great Rd	Littleton	r 1780
LIT.47	Wright, Augustus House	500 Great Rd	Littleton	c 1830
LIT.26	Proctor Homestead	526 Great Rd	Littleton	1926
LIT.48	Littleton Almshouse - Littleton Town Farm	547 Great Rd	Littleton	1861
LIT.194	Hartwell, John Jr. House	69 Hartwell Ave	Littleton	r 1830
LIT.195	Hartwell, Charles A. Outbuilding	70 Hartwell Ave	Littleton	r 1900
LIT.196	Brown, Alvah House	122 Hartwell Ave	Littleton	r 1825
LIT.197	Brown, Nathan House	158 Hartwell Ave	Littleton	c 1810
LIT.198	Briton, Joel House	194 Hartwell Ave	Littleton	c 1781
LIT.916	Tophet Swamp and Chasm	Harvard Rd	Littleton	
LIT.185	Thacher, Josiah P. House	20 Harvard Rd	Littleton	r 1890
LIT.199	Tuttle, Alson House	94 Harvard Rd	Littleton	c 1828
LIT.13	Davis, Samuel House	195 Harvard Rd	Littleton	r 1680
LIT.201	Raymond, Joseph Store	2 Harwood Ave	Littleton	r 1840
LIT.202	Raymond, Benjamin Store	8 Harwood Ave	Littleton	r 1840
LIT.203	Fletcher, Charles K. House	12 Harwood Ave	Littleton	r 1840

Inv. No.	Property Name	Street	Town	Year
LIT.204	Patch, George House	18 Harwood Ave	Littleton	r 1840
LIT.205	Ireland, James W. House	26-28 Harwood Ave	Littleton	r 1885
LIT.206	Conant, R. House	30-32 Harwood Ave	Littleton	r 1880
LIT.207	McNiff House	46 Harwood Ave	Littleton	r 1900
LIT.208		55 Harwood Ave	Littleton	r 1900
LIT.209	Mullin, Paul F. House	56 Harwood Ave	Littleton	r 1900
LIT.210	Ogilvie, Parker House	59 Harwood Ave	Littleton	r 1900
LIT.211		67 Harwood Ave	Littleton	r 1900
LIT.212	Crane, Joseph H. House	71 Harwood Ave	Littleton	r 1900
LIT.213		169 Harwood Ave	Littleton	c 1932
LIT.214		185 Harwood Ave	Littleton	r 1920
LIT.901	Fitchburg Railroad Bridge over Harwood Street	Harwood St	Littleton	c 1847
LIT.904	Liberty Square	Hill Rd	Littleton	
LIT.910	I-495 Bridge over Route 2	I-495	Littleton	1959
LIT.37	Bill's Store	King St	Littleton	r 1850
LIT.800	Old Burying Ground	King St	Littleton	c 1721
LIT.918	Old Burying Ground - Front and Perimeter Walls	King St	Littleton	c 1748
LIT.919	Old Burying Ground - Wrought Iron Entrance Gates	King St	Littleton	c 1900
LIT.921	Old Burying Ground - Robbins - Sawyer Lot	King St	Littleton	r 1880
LIT.922	Old Burying Ground - Breck Family Lot	King St	Littleton	r 1850
LIT.927	Old Burying Ground - Kidder - Dix - Russell Tomb	King St	Littleton	r 1850
LIT.928	Old Burying Ground - Rogers, Daniel Monument	King St	Littleton	c 1782
LIT.929	Old Burying Ground - Rogers Table Tomb	King St	Littleton	r 1820
LIT.930	Old Burying Ground - Robbins - Sawyer Monument	King St	Littleton	c 1900
LIT.931	Old Burying Ground - Blanchard Monument	King St	Littleton	c 1900
LIT.932	Old Burying Ground - Shattuck, Benjamin Monument	King St	Littleton	c 1763
LIT.933	Old Burying Ground - Chamberlain, Thomas Marker	King St	Littleton	c 1723
LIT.934	Old Burying Ground - Bulkeley, Capt. Joseph Marker	King St	Littleton	c 1748
LIT.18	Sanderson, Moses - Mead, Thomas House	2 King St	Littleton	c 1724
LIT.215	Kimball, Jesse House	32-34 King St	Littleton	r 1820
LIT.216	Kimball, John A. House	62-64 King St	Littleton	r 1920
LIT.217		70 King St	Littleton	r 1920
LIT.218	Swayer, R. House	80 King St	Littleton	r 1880
LIT.219	Moore, James F. House	111 King St	Littleton	r 1880

Inv. No.	Property Name	Street	Town	Year
LIT.220		119 King St	Littleton	c 1930
LIT.221	Jeffords, George House	122 King St	Littleton	r 1820
LIT.222	Cooper, Jonathan House	127 King St	Littleton	r 1825
LIT.223	Goodwin, Jonathan House	169 King St	Littleton	r 1840
LIT.224	Hartwell, Jonathan House	242 King St	Littleton	r 1825
LIT.225	Dix, Benjamin House	264 King St	Littleton	r 1825
LIT.226		272 King St	Littleton	r 1880
LIT.227	Powers, Isaac - Rogers, Rev. Daniel House	280 King St	Littleton	r 1720
LIT.228	Prescott, Timothy House	288 King St	Littleton	r 1775
LIT.35	Whitcomb - Herpes, Fred Dairy Farmhouse	300 King St	Littleton	r 1850
LIT.78	Dix, Lucy Hartwell House	301 King St	Littleton	r 1820
LIT.79	Rogers, Rev. Daniel House	305 King St	Littleton	c 1774
LIT.80	Saint Anne's Catholic Church	310 King St	Littleton	1916
LIT.81		314 King St	Littleton	r 1880
LIT.82		315 King St	Littleton	r 1840
LIT.83		319 King St	Littleton	r 1880
LIT.84		323 King St	Littleton	r 1865
LIT.85	Littleton Orthodox Congregational Church	330 King St	Littleton	1841
LIT.86		333 King St	Littleton	r 1845
LIT.87	Kimball, Daniel and Dea. James House	336 King St	Littleton	c 1800
LIT.102	Nashoba Garage	341 King St	Littleton	r 1925
LIT.103	Hartwell, John M. House	347 King St	Littleton	r 1900
LIT.104	Kimball, J. - Conant, Waldo E. House	350 King St	Littleton	r 1865
LIT.105	Kimball, Henry Dix House	359 King St	Littleton	r 1880
LIT.106	Sawyer, Jonathan N. House	360 King St	Littleton	r 1880
LIT.107		362 King St	Littleton	r 1865
LIT.108	Boardman, Homer House	363 King St	Littleton	r 1900
LIT.109	Hendley, William W. House	366 King St	Littleton	r 1845
LIT.110	Fletcher, Elmer W. House	367 King St	Littleton	r 1880
LIT.111		373 King St	Littleton	r 1900
LIT.112		377 King St	Littleton	r 1900
LIT.229	Barker, Agnes B. - Munro, Esther M. House	409 King St	Littleton	1934
LIT.230	Prouty, Gardner House	413 King St	Littleton	r 1880
LIT.231	Burnham, Daniel House	417 King St	Littleton	r 1840
LIT.88		422 King St	Littleton	r 1865
LIT.89	Dodge, Hannah P. House	423 King St	Littleton	r 1845
LIT.90	Tuttle, Jebediah House	432 King St	Littleton	c 1790
LIT.139		435 King St	Littleton	

Inv. No.	Property Name	Street	Town	Year
LIT.91	Tuttle, George Whitney House	438 King St	Littleton	r 1865
LIT.92	Prouty, Gardner House	441 King St	Littleton	r 1840
LIT.93	Robbins, Nehemiah B. House	442 King St	Littleton	r 1840
LIT.140	Wright, L. A. House	448 King St	Littleton	c 1875
LIT.94		450 King St	Littleton	1915
LIT.141	U. S. Post Office - Littleton Main Branch	451 King St	Littleton	c 1965
LIT.95	Houghton, Charles W. - Fletcher, Elmer W. House	459 King St	Littleton	r 1900
LIT.142	Shell Gas Station	460 King St	Littleton	1990
LIT.24	Littleton Baptist Church	461 King St	Littleton	1841
LIT.143		470 King St	Littleton	c 1910
LIT.144	Lawrence Barn	476 King St	Littleton	c 1870
LIT.96	Littleton General Store	486 King St	Littleton	c 1840
LIT.145	Archer's Mobil Station	500 King St	Littleton	r 1975
LIT.146	Mitchell, Joseph House	510 King St	Littleton	c 1928
LIT.147	Barker, Florence House	512 King St	Littleton	1935
LIT.97	Burnham, James Harvey - Needham, Boyton House	529 King St	Littleton	c 1830
LIT.25	Nye, Capt. Thomas House	534 King St	Littleton	r 1720
LIT.917	Barker Pear Orchard	534 King St	Littleton	r 1850
LIT.98		537 King St	Littleton	r 1900
LIT.915	Littleton Common	Meetinghouse Rd	Littleton	c 1714
LIT.99		6 Meetinghouse Rd	Littleton	r 1925
LIT.38	Reed - Wood Place	20 Meetinghouse Rd	Littleton	c 1780
LIT.900	Fitchburg Railroad Bridge over Mill Pond	Mill Pond	Littleton	c 1847
LIT.15	Warren, Thomas Grist Mill	Mill Rd	Littleton	
LIT.200	Proctor, Herbert F. House	161 Mill Rd	Littleton	c 1885
LIT.23	Russell, Nathaniel House	10 Murray Park Rd	Littleton	r 1720
LIT.232	Kidder, William H. House	21 New Estate Rd	Littleton	c 1900
LIT.233	Marshall, Joel House	441 Newtown Rd	Littleton	r 1825
LIT.234	Fletcher, Joseph House	455 Newtown Rd	Littleton	c 1790
LIT.5		511 Newtown Rd	Littleton	c 1830
LIT.33	Worster, Benjamin House	525 Newtown Rd	Littleton	c 1782
LIT.32	Tuttle, Capt. Edmund House	531 Newtown Rd	Littleton	r 1830
LIT.2	Tuttle, Jeremiah House	537 Newtown Rd	Littleton	r 1795
LIT.39	Tuttle, Nathan Hoar House	543 Newtown Rd	Littleton	r 1820
LIT.40		563 Newtown Rd	Littleton	r 1880
LIT.3	Whitney, Josiah - Hoar, Benjamin House	564 Newtown Rd	Littleton	c 1685

Inv. No.	Property Name	Street	Town	Year
LIT.14	Pingrey - Sanderson House	4 Oak Hill Rd	Littleton	c 1760
LIT.10	Pickard, Daniel House	18 Pickard Ln	Littleton	c 1790
LIT.906	Porter, Col. John Bridge	Porter Rd	Littleton	
LIT.20		40 Powers Rd	Littleton	r 1840
LIT.169	Christie, Dr. James Dearborn House	4 Robinson Rd	Littleton	c 1890
LIT.235	Kimball, Benjamin House	12 Robinson Rd	Littleton	r 1825
LIT.236	Fletcher, Joel House	22 Robinson Rd	Littleton	r 1825
LIT.237		26 Robinson Rd	Littleton	c 1920
LIT.34	Houghton Memorial Building	4 Rogers St	Littleton	1895
LIT.77	Hoar, Reuben House	7 Rogers St	Littleton	r 1845
LIT.907	Route 2 Bridge over Beaver Brook	Rt 2	Littleton	1949
LIT.909	Route 2 Bridge over Unidentified Brook	Rt 2	Littleton	
LIT.238	Kimball House	11 Russell St	Littleton	r 1915
LIT.239	Turner, William C. House	59 Russell St	Littleton	r 1840
LIT.184	West School	22 Sanderson Rd	Littleton	c 1830
LIT.171	Young, Elliot House	1 Shattuck St	Littleton	c 1925
LIT.172		9 Shattuck St	Littleton	1992
LIT.31	Shattuck, Rev. Benjamin House	11 Shattuck St	Littleton	c 1717
LIT.29	Hartwell, Nathan - Pickard, William L. House	12 Shattuck St	Littleton	c 1730
LIT.240		20 Shattuck St	Littleton	r 1925
LIT.241		28 Shattuck St	Littleton	r 1925
LIT.242		31 Shattuck St	Littleton	r 1925
LIT.36	Shattuck Street Elementary School	41 Shattuck St	Littleton	1922
LIT.28	Stevens, Joseph Double House	Stevens St	Littleton	c 1760
LIT.174	Cumberland Farms Market	5 Stevens St	Littleton	c 1970
LIT.100		17 Stevens St	Littleton	c 1900
LIT.101	The Block	23 Stevens St	Littleton	c 1922
LIT.186	Cox, Edwin Augustus House	36 Tahattawan Rd	Littleton	1903
LIT.187	Parlin, Warner House	119 Tahattawan Rd	Littleton	r 1825
LIT.188	Sullivan, Timothy House	152 Tahattawan Rd	Littleton	1894
LIT.189	Wright, Isaac House	160 Tahattawan Rd	Littleton	r 1825
LIT.6	Dudley, Samuel House	195 Tahattawan Rd	Littleton	c 1700
LIT.7	Cole, Naham House	219 Tahattawan Rd	Littleton	c 1750
LIT.908	Taylor Street Bridge over Route 2	Taylor St	Littleton	1950
LIT.190	West Littleton Depot	2 Taylor St	Littleton	1879
LIT.191	Thacher, Josiah P. General Store	3 Taylor St	Littleton	r 1915
LIT.192		11 Taylor St	Littleton	r 1870
LIT.193		15-19 Taylor St	Littleton	c 1900

Inv. No.	Property Name	Street	Town	Year
LIT.49		37 Warren St	Littleton	r 1820
LIT.19	Warren, Sampson House	47 Warren St	Littleton	c 1728
LIT.50		48 Warren St	Littleton	r 1780
LIT.902	Whitcomb Avenue Bridge over Route 2	Whitcomb Ave	Littleton	1950
LIT.905	Whitcomb, Jonathan Memorial	Whitcomb Ave	Littleton	
LIT.911	Whitcomb, Jonathan and Elizabeth Baker Tomb	Whitcomb Ave	Littleton	1845
LIT.912	Whitcomb Tomb II	Whitcomb Ave	Littleton	
LIT.913		Whitcomb Ave	Littleton	
LIT.9	Whitcomb, Andrew House	155 Whitcomb Ave	Littleton	1798
LIT.8	Whitcomb, Jonathan Jr. House	169 Whitcomb Ave	Littleton	c 1700
LIT.11	Whitcomb House and Farm	189 Whitcomb Ave	Littleton	c 1844
LIT.920	Old Burying Ground - Cast Iron Pedestrian Gates	White St	Littleton	r 1880
LIT.923	Old Burying Ground - Wright - Smith Lot	White St	Littleton	r 1880
LIT.924	Old Burying Ground - Read - Stevens Lot	White St	Littleton	r 1880
LIT.925	Old Burying Ground - Johnson Lot	White St	Littleton	r 1880
LIT.926	Old Burying Ground - Mead, Lucy Tomb	White St	Littleton	r 1820

Appendix E

Reference Documents

Pollutant Impacts on Water Quality	
Sediment	Sediment is a common component of stormwater, and can be a pollutant. Sediment can be detrimental to aquatic life (primary producers, benthic invertebrates, and fish) by interfering with photosynthesis, respiration, growth, reproduction, and oxygen exchange in water bodies. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.
Nutrients	Nutrients including nitrogen and phosphorous are the major plant nutrients used for fertilizing landscapes, and are often found in stormwater. These nutrients can result in excessive or accelerated growth of vegetation, such as algae, resulting in impaired use of water in lakes and other sources of water supply. For example, nutrients have led to a loss of water clarity in Lake Tahoe. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.
Bacteria and Viruses	Bacteria and viruses are common contaminates of stormwater. For separate storm drain systems, sources of these contaminants include animal excrement and sanitary sewer overflow. High levels of indicator bacteria in stormwater have led to the closure of beaches, lakes, and rivers to contact recreation such as swimming.
Oil and Grease	Oil and grease includes a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Sources of oil and grease include leakage, spills, cleaning and sloughing associated with vehicle and equipment engines and suspensions, leaking and breaks in hydraulic systems, restaurants, and waste oil disposal.
Metals	Metals including lead, zinc, cadmium, copper, chromium, and nickel are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles, or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Over half the trace metal load carried in stormwater is associated with sediments. Metals are of concern because they are toxic to aquatic organisms, can bioaccumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies.
Organics	Organics may be found in stormwater at low concentrations. Often synthetic organic compounds (adhesives, cleaners, sealants, solvents, etc.) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways.
Pesticides	Pesticides (including herbicides, fungicides, rodenticides, and insecticides) have been repeatedly detected in stormwater at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for biomagnification through the food web, potentially resulting in elevated levels of toxins in organisms that feed on them, such as fish and birds.
Gross Pollutants	Gross Pollutants (trash, debris and floatables) may include heavy metals, pesticides, and bacteria in stormwater. Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables may create an aesthetic “eye sore” in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. Such substances may harbor bacteria, viruses, vectors, and depress the dissolved oxygen levels in streams, lakes and estuaries sometimes causing fish kills.
Vector Production	Vector production (e.g., mosquitoes, flies, and rodents) is frequently associated with sheltered habitats and standing water. Unless designed and maintained properly, standing water may occur in treatment control BMP’s for 72 hours or more, thus providing a source for vector habitat and reproduction (Metzger, 2002).

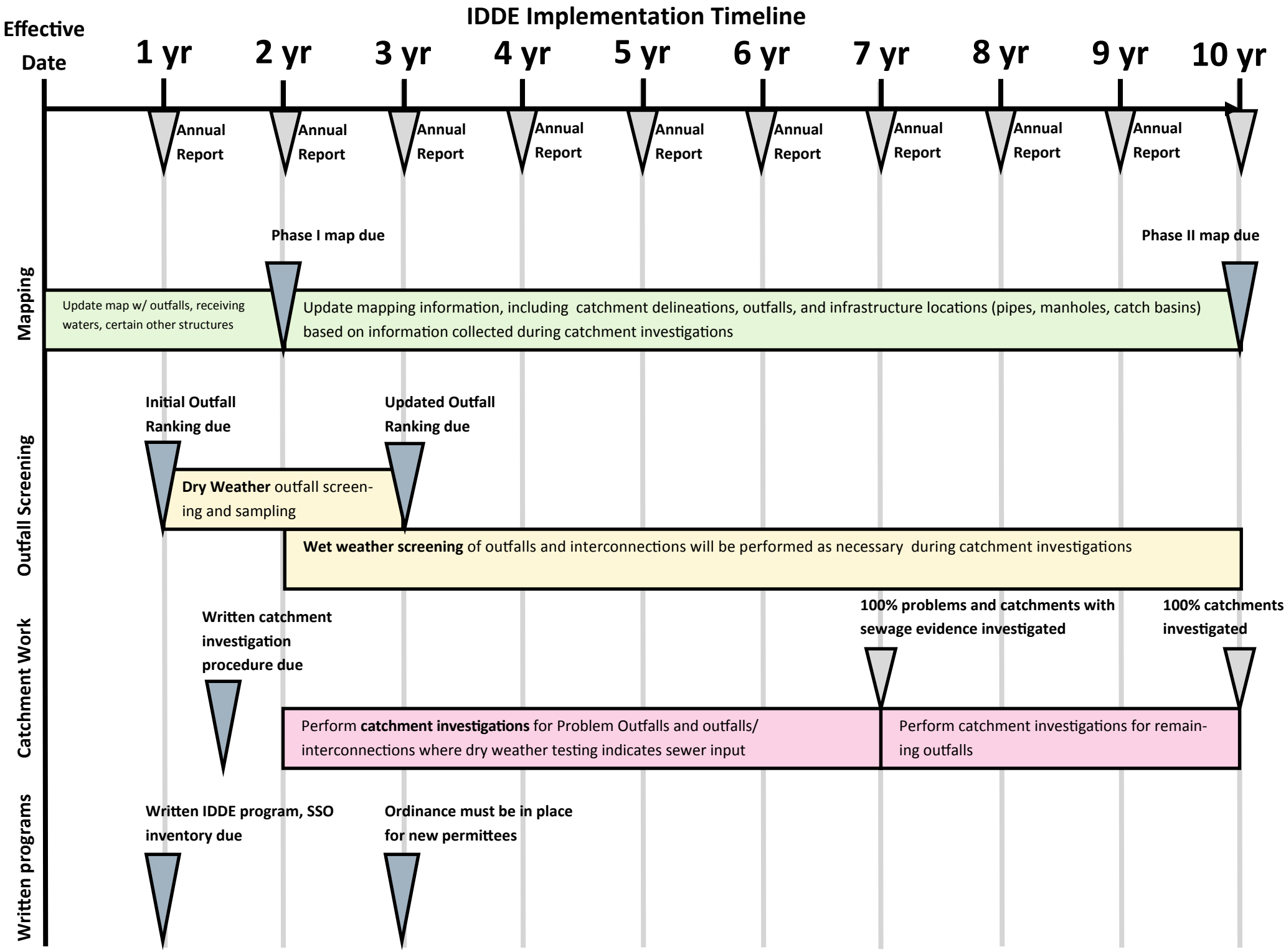
Source: California Stormwater Quality Association, Stormwater BMP Handbook, 2003.

Potential pollutants likely associated with specific *municipal facilities*

Municipality Facility Activity	Potential Pollutants								
	Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Building and Grounds Maintenance and Repair	X	X	X	X	X	X	X	X	X
Parking/Storage Area Maintenance	X	X	X	X	X	X	X		X
Waste Handling and Disposal	X	X	X	X	X	X	X	X	X
Vehicle and Equipment Fueling			X	X		X	X		
Vehicle and Equipment Maintenance and Repair				X		X	X		
Vehicle and Equipment Washing and Steam Cleaning	X	X	X	X		X	X		
Outdoor Loading and Unloading of Materials	X	X	X	X		X	X	X	X
Outdoor Container Storage of Liquids		X		X		X	X	X	X
Outdoor Storage of Raw Materials	X	X	X			X	X	X	X
Outdoor Process Equipment	X		X	X		X	X		
Overwater Activities			X	X	X	X	X	X	X
Landscape Maintenance	X	X	X		X			X	X
Source: California Stormwater BMP Handbook (http://www.cabmphandbooks.com/)(slightly modified)									

Potential pollutants likely associated with *municipal activities*

Municipal Program	Activities	Potential Pollutants								
		Sediment	Nutrients	Trash	Metals	Bacteria	Oil & Grease	Organics	Pesticides	Oxygen Demanding Substances
Roads, Streets, and Highways Operation and Maintenance	Sweeping and Cleaning	X		X	X		X			X
	Street Repair, Maintenance, and Striping/Painting	X		X	X		X	X		
	Bridge and Structure Maintenance	X		X	X		X	X		
Plaza, Sidewalk, and Parking Lot Maintenance and Cleaning	Surface Cleaning	X	X			X	X			X
	Graffiti Cleaning	X	X		X			X		
	Sidewalk Repair	X		X						
	Controlling Litter	X		X		X	X			X
Fountains, Pools, Lakes, and Lagoons Maintenance	Fountain and Pool Draining		X					X		
	Lake and Lagoon Maintenance	X	X	X		X			X	X
Landscape Maintenance	Mowing/Trimming/Planting	X	X	X		X			X	X
	Fertilizer & Pesticide Management	X	X						X	
	Managing Landscape Wastes			X					X	X
	Erosion Control	X	X							
Drainage System Operation and Maintenance	Inspection and Cleaning of Stormwater Conveyance Structures	X	X	X		X		X		X
	Controlling Illicit Connections and Discharges	X	X	X	X	X	X	X	X	X
	Controlling Illegal Dumping	X	X	X	X	X	X	X	X	X
	Maintenance of Inlet and Outlet Structures	X		X	X		X			X
Waste Handling and Disposal	Solid Waste Collection		X	X	X	X	X	X		X
	Waste Reduction and Recycling			X	X					X
	Household Hazardous Waste Collection			X	X		X	X	X	
	Controlling Litter			X	X	X		X		X
	Controlling Illegal Dumping	X		X		X	X		X	X
Water and Sewer Utility Operation and Maintenance	Water Line Maintenance	X				X	X			
	Sanitary Sewer Maintenance	X				X	X			X
	Spill/Leak/Overflow Control, Response, and Containment	X	X			X		X		X
Source: California Stormwater BMP Handbook (http://www.cabmphandbooks.com/)										


IDDE Implementation Timeline
Effective Date
1 yr
2 yr
3 yr
4 yr
5 yr
6 yr
7 yr
8 yr
9 yr
10 yr
Annual Report
Mapping
Phase I map due
Phase II map due
Update map w/ outfalls, receiving waters, certain other structures
Update mapping information, including catchment delineations, outfalls, and infrastructure locations (pipes, manholes, catch basins) based on information collected during catchment investigations
Outfall Screening
Initial Outfall Ranking due
Updated Outfall Ranking due
Dry Weather outfall screening and sampling
Wet weather screening of outfalls and interconnections will be performed as necessary during catchment investigations
Catchment Work
Written catchment investigation procedure due
100% problems and catchments with sewage evidence investigated
100% catchments investigated
Perform catchment investigations for Problem Outfalls and outfalls/ interconnections where dry weather testing indicates sewer input
Perform catchment investigations for remaining outfalls
Written programs
Written IDDE program, SSO inventory due
Ordinance must be in place for new permittees

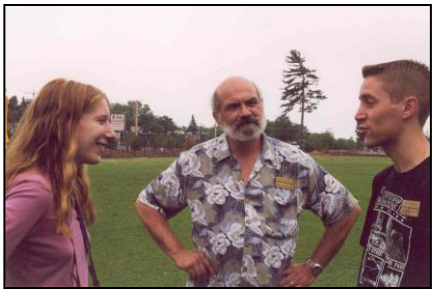
Tips for Organizing and Conducting Volunteer Clean-up Events

By: Jen Drociak –Acting Coordinator / Volunteer, Manchester Urban Ponds Restoration Program (UPRP)

Step 1: Plan Your Clean-Up Event

A. Land and / or Shore? Determine the Location(s): Determine where, in proximity to the waterbody, your group wishes to concentrate its efforts on during a clean-up event. To find heavily-littered areas, and / or areas that are prone to illegal dumping, walk along the shore, in advance, to identify location(s) for the clean-up event. Identify accessible paths along the shoreline and / or on public trails that are easy for people to walk. The location(s) may be largely determined by public (or lake / homeowner association) access points such as a public beach, boat-launch, or park. If the location is large, consider identifying smaller locations within the larger location which can be managed by individual group leaders and groups. Determining the location(s) will provide you with an idea of the footwear that may be needed for the task based upon the terrain. If the clean-up event will be located at a beach or a dry area, sandals or sneakers may be adequate. If it will be located in a wetland or mucky area, knee-boots may be appropriate. If it will be located in water, hip-boots may be most appropriate. Determining the location(s) will also provide you with a sense of how many volunteers your group is seeking for the clean-up event.

The UPRP typically focuses clean-up efforts in the parks adjacent to the ponds by skirting around the ponds themselves. This involves differing terrain, and thus footwear. There have been occasions, however, where one or more volunteers have also used a small fishing boat to retrieve trash from the water that is too deep to obtain via hip-waders.



B. Obtain Landowner Permission: Whether the location(s) of your clean-up event is / are municipally-owned or privately-owned, determine who owns the property in advance in order to obtain permission. If you do not know who the property owner is, visit your municipality's on-line assessor's website to review the tax map(s) and property card(s) associated with the area. It is typically easy to obtain permission to organize a clean-up on municipally-owned / public land. If the location(s) are on privately-owned land, talk to the land owner(s) and explain why you are organizing a clean-up in that area, along with the benefits of doing so. Obtain permission from them in writing, if you can, by considering they sign a form. Verbal permission may be adequate, however.

The UPRP organizes clean-up events on land owned by Public Works and Parks, Recreation, and Cemetery Departments. We have not had to seek private landowner permission. We simply notify the Manchester Public Works Department and Parks, Recreation, and Cemetery Department of the dates of the clean-up events.

C. Determine the Task(s) at Hand: Determine what you will request of your volunteers. Will it be the removal of trash only? If so, will it be the removal of large items only or all items including the minutia? Will it be the removal of yard waste only? Graffiti removal or other vandalism? All of the above? Determining the task(s) at hand will provide you with an idea of the supplies (and hours) you will need to perform the task(s).

The UPRP typically removes trash only. We typically do not pick up the minutia (cigarette butts, bottle caps, etc.) due to the large volume of trash we collect and the limited amount of time and volunteers we have at each clean-up event.

D. Determine the Check-In Location: Based upon the chosen location(s) of the clean-up event, consider and determine the most appropriate location for volunteers to initially gather to check in and obtain supplies, as well as to reconvene at the end of the clean-up event. This may be a kiosk, boat-launch, or specific location on a beach or in a park. Try to stay away from busy roads or areas that are difficult to access.

The UPRP typically requests that volunteers meet in one central / well-known location such as a kiosk in a parking lot or boat-launch. We have kept the initial meeting location at each clean-up event consistent over the years.

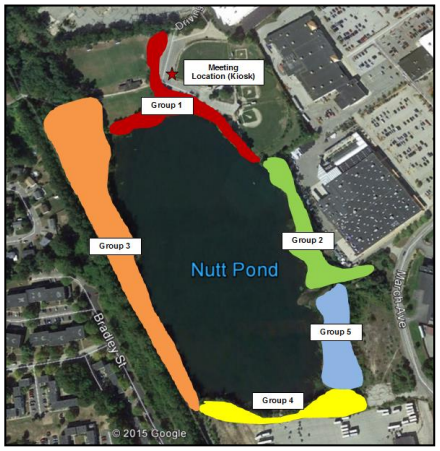
E. Determine the Most Appropriate Age(s) of Your Volunteers: Based upon the task(s) at hand, determine the most appropriate age(s) of your volunteers. Are you seeking adults only? Children? Both? Do you have tasks that all can partake in, or are the tasks age-specific?

The UPRP generally seeks volunteers of all ages for clean-up events and encourage everyone, despite their age or ability, to participate in a manner of how they most feel comfortable.

F. Determine the Desired Number of Volunteers: Based upon the number and location(s) that are chosen for the clean-up event, determine the desired number of volunteers to partake in the event.

The UPRP typically splits the area adjacent to the ponds into several areas, or groups of volunteers.

G. Create Map(s) of the Location(s) <u>OR</u> Plan on Designating a "Group Leader" for Each Location: If the location(s) is / are large enough to break into more than one group during the clean-up event, consider making aerial photographic "maps" (or using topographic maps) of each group's area, indicating on the map the original meeting location, and the group's start and end point.



The UPRP has created aerial maps to use in the past. However, what we consider to be more helpful is having a "group leader" (returning volunteer or someone familiar with the area) lead a small group of other volunteers in each designated area.

Step 2: Schedule Your Clean-Up Event

A. Choose a Date: Choose a date for the clean-up event at a time of year that makes the most sense to your group. Keep in mind that while lakes and ponds have year-round residents, the majority of residents are likely seasonal and may not arrive for the season, or on or around Memorial Day weekend. Thus, a late-spring or late-fall cleanup may not be the most appropriate time as it may not garner the most volunteers. An early or mid-summer cleanup may be the most appropriate. Consider, perhaps, scheduling the event in conjunction with an annual lake association meeting or holiday barbeque. Also consider scheduling the date of the clean-up event at least a month in advance to allow time to prepare (gather supplies and recruit volunteers). Lastly, consider a rain date.

The UPRP typically schedules annual pond and park cleanups on Saturday mornings during the last two weeks in April and the first one or two weeks in May. This is because a) this time of year is typically after the snow has melted and b) this time of year is typically before "leaf-in" (and in the case of some of these areas, this is important, as the areas are overtaken with thick stands of invasive species). We do not offer rain dates.

B. Choose a Time: Determine the amount of time it may take to clean up the area(s) of your choosing. Will it take one hour? Two hours? More? This is also a factor of the number of volunteers that attend (typically the more volunteers that attend the least amount of time the clean-up will take). If you believe the area(s) may take more than two hours, it may be best to schedule a two-part clean-up event. Also consider the time of day most appropriate to your group, especially if it is scheduled in conjunction with (or before or after) another event such as an annual meeting or holiday barbeque.

The UPRP has realized that 1 ½ - 2 hours is a sufficient amount of time to allot to clean-up events. We also realize that volunteers typically do not have the time or patience to commit to any more time in one day than that. We have also typically scheduled the clean-up events from 9:00AM to 11:00AM, with a meeting time of no later than 8:50AM. Early-morning clean-up events afford volunteers to have the remainder of the day for other things.

Step 3: Determine and Obtain Necessary Supplies

A. Determine the Necessary Supplies: Determining the task(s) at hand will determine your necessary supplies. If your clean-up event is strictly a trash removal cleanup, you may only need to obtain latex gloves and trash bags. If your clean-up event also includes yard-waste removal, you may need to obtain paper yard-waste bags, rakes and / or other tools.

Since the UPRP clean-up events are strictly focused on trash-removal, the only supplies we must procure are latex gloves (medium sized) and trash bags. We also have a few hand-held trash-grabbers since some volunteers find them helpful in reaching difficult areas and / or to prevent excessive bending.

B. Obtain the Necessary Supplies: Determine how you will obtain the necessary supplies. Does your group have a budget? Will your group be purchasing your supplies? Will your group fundraise to purchase supplies? Will your group borrow supplies, from perhaps the town or city?

The UPRP typically obtains supplies from the Manchester Parks, Recreation, and Cemetery Department. These supplies typically only include latex gloves and trash bags, but have included, in the past, rakes, other tools and yard waste bags. We also typically have a large container of hand-sanitizer available.

C. Obtain a First-Aid Kit: Consider obtaining one or more First Aid kits (for one or more groups of volunteers) in case it is needed. It is better to be proactively safe!

The UPRP has one First-Aid kit for use.

D. Consider Providing Water and Snacks: If your group has the financial means, consider providing water and snacks to your volunteers for afterwards. If your group does not have the financial means, consider soliciting donations from local establishments or having your group bake some treats, and bring a large cooler of ice water (or iced-tea) and some paper (or reusable plastic) cups.

The UPRP does not regularly provide water and snacks to volunteers since we do not have a budget to do so. On occasion, we have been able to obtain donations for yogurt snacks from Stonyfield Farm. On occasion we have also brought or made a baked good.

Step 4: Determine Your Waste Disposal Options

A. Determine Your Waste Disposal Options: At the end of your clean-up event, determine how and where you will dispose of the trash that was collected. Is there a dumpster on site that your group has permission to use? Are there already trash and / or recycling carts on site that your group has permission to use? If not, consider contacting your municipality's Highway Department, Parks & Recreation Department, or Road Agent, at least a month in advance, who may be able to coordinate trash and / or recycling pickup from your municipality's vendor (i.e. Waste Management, Pinard, etc.). Determine when the trash and / or recycling will be picked up and what the requirements for pickup are (especially with items such as vehicular tires and batteries, etc.). In addition, consider recruiting volunteers with pick-up trucks, especially if your group is cleaning multiple areas, and trash must be stockpiled in one area at the end of the event. Similarly, if you cannot obtain trash pick-up services, volunteers with pick-up trucks, and a municipal sticker (or permission) may be able to haul the trash and / or recycling to your local landfill or transfer station for free.

The UPRP typically sends notification of the clean-up schedule to the Manchester Public Works Director as soon as the dates are calendared. The Public Works Director, or staff, has coordinated with Manchester's solid waste collection staff to collect the trash on the Monday following the cleanup event (which have been held on Saturdays). While there have been a few times the Public Works Department has made one or more 95-gallon recycling carts available for the clean-up events, they are generally not available, and therefore, recycling is not typically sorted from other debris. All (tied / secure) bags of trash have been neatly placed in the same locations over the years; typically underneath or adjacent to the informational kiosks. Trash collected that does not fit into bags is also neatly placed adjacent to the bagged trash. We also recruit volunteers with pick-up trucks so that trash from different areas of the cleanup can be taken to one designated location at the end of the event. In addition, one of our volunteers separates steel and other scrap metal and takes it to a scrap metal recycling facility.

Step 5: Advertise Your Clean-Up Event / Recruit Volunteers

A. Determine Any Project Partners: In addition to volunteers who live around the waterbody, and any other residents of the town, determining any existing local groups or clubs that may be able to assist with the clean-up event is always helpful. Is there a local middle school, high school, or even college (if nearby) environmental club? A local chapter of the Student Conservation Association (SCA)? Any other organization, volunteer group, or club? A lot of these groups and / or clubs seek new community service projects and can help you garner additional / new volunteers.

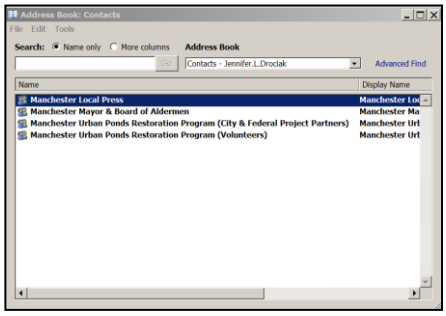
The UPRP has partnered with the Student Conservation Association, local high school ecology clubs, local boy-scout troops, trout-fishing clubs, geo-cashing groups, and others in the past. This has helped garner additional / new volunteers.

B. Determine the Best Way(s) to Advertise Your Clean-Up Event: Determine the target audience of volunteers and consider the best way(s) to advertise your clean-up event. Is it by e-mail? Website? Post-card? Posting of a flyer on a community bulletin board and / or kiosk? An annual lake association newsletter? An advertisement in a local newspaper? TV? Radio? facebook / social media? All of the above? Remember, printed materials and postage cost money, as typically do newspaper and radio advertisements. If your group has available funds for this, that is one thing. If not, instead of

simply placing a paid advertisement in a newspaper, try reaching out to a local news reporter to see if s/he will write a story about your cleanup (or write and submit an op-ed piece). This is usually good, free, advertisement. Also determine the most appropriate time to advertise for the clean-up event. Will you be advertising only once, or multiple times before the event?

The UPRP has typically advertised clean-up events in the following manners: 1) The UPRP webpage, 2) The City of Manchester website "Calendar of Events", 3) the UPRP facebook page, and 4) E-newsletter / e-mail. Local newspapers are also always gracious to cover the event(s) in a story beforehand. The UPRP typically sends posts the clean-up events on the website, and sends out an e-mail approximately three weeks in advance of the cleanup. The UPRP will then send weekly e-mails.

C. Create an E-Mail Distribution List: If you don't already have an e-mail distribution list, consider creating one. This may include names and e-mail addresses of lake association members, conservation commissioners, selectmen, municipal employees / department heads and others you know who may be interested. You can add to this with each clean-up event your group coordinates. If you have access to Constant Contact, Mailer, Mail Chimp, or other similar e-mail platform, this may be easier and more appropriate to use. If not, e-mail is a good starting place.



The UPRP has an e-mail distribution list which consists of approximately 200 individuals consisting of city aldermen, city department heads, conservation commissioners, media contacts, active school groups and other environmental organizations, and former volunteers. With every e-mail sent, an option is sent to opt-out of receiving e-mails by having a name and e-mail address removed from the list. This list is updated at least twice a year.

D. Before You Mail, Post, (or Hit the Send Button): Before you mail or post your flyer, or hit the send button to your e-mail distribution list, be sure to include the Who, What, Where, When, Why, and How to ensure all information is readily available. Why are you seeking volunteers? Who are you seeking as volunteers? What tasks are you seeking of volunteers? Where (general location and specific meeting location) are you seeking volunteers? When (date / time) are you seeking volunteers? Is there a rain date? How will the tasks be conducted? What should the volunteers wear or bring? What will be provided? Are you requesting an RSVP? For more information, who should they contact? Prepare your volunteers by letting them know what time to arrive, what to wear (clothes that can get dirty or wet, long pants, work gloves, boots or sturdy shoes, etc.), what to bring (sunscreen, insect repellant, water) and what to do in case of bad weather (rain date or cancellation information / phone number).

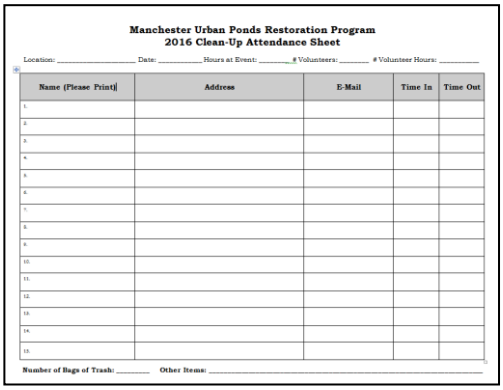
For Example: Seeking volunteers of all ages to assist in an annual trash clean-up at Black Brook and Blodget Park in Manchester on Saturday, April 23, 2016 from 9:00AM – 11:00AM. Volunteers will partner to clean the park and skirt the edges of the brook and wetland complex to remove accumulated trash. Please dress appropriately for weather as no rain date is scheduled. Latex gloves and trash bags will be provided, but please wear knee-boots, or hip-waders if you have them. No RSVP necessary. For more information, please visit www.manchesternh.gov/urbanponds or contact Jen Drociak at email@gmail.com or (603) ### - ####. We look forward to seeing you there!

Step 6: Conduct Your Clean-Up Event

A. Arrive Early: Consider arriving 15 minutes to one hour earlier than your volunteers so that you can set up at your check in location. Consider setting up the following: "Clean-Up Attendance Sheet", water and / or refreshments, first aid and safety, trash bags and clean-up supplies, organizational information (flyers, fact sheets, reports, etc.). Consider also walking around the location(s) to identify any new trash and / or safely concerns that may have accrued / arisen since your last visit.

The UPRP coordinator(s) typically meet on-site approximately 15-30 minutes in advance of volunteers to set up trash bags, latex gloves, and the "Clean-Up Attendance Sheet". We also survey the site to identify any new trash or safety hazards to relay to volunteers.

B. Welcome Your Volunteers and Ask Them to Sign-In: Welcome each volunteer upon arrival and ask that they sign a "Clean-Up Attendance Sheet" so that your group may account for number of volunteers and volunteer hours contributed to the clean-up event. Consider leaving the "Clean-Up Attendance Sheet" at the check-in location for those volunteers who may have to leave (and sign out) earlier than the full allotted time.



Manchester Urban Ponds Restoration Program
2016 Clean-Up Attendance Sheet

Location: _____ Date: _____ Hours at Event: _____ # Volunteers: _____ # Volunteer Hours: _____

	Name (Please Print)	Address	E-Mail	Time In	Time Out
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

Number of Bags of Trash: _____ Other Items: _____

The UPRP "Clean-Up Attendance Sheet" typically notes the location and date of the event, and has room to tally the number of volunteers, number of volunteer hours, number of bags of trash and other debris. It also has fields for volunteers to print their name, address, and e-mail, and note the time they checked in, and the time they checked out.

C. Ask Volunteers to Sign a Liability Waiver and Photo-Release Form: Trash found in a waterbody will likely be dirty, rusty, slimy, and sharp. In addition, your group may find broken glass, hypodermic needles and hazardous wastes. Heavy items should not be lifted alone. Caution is needed when handling all trash in order to avoid cuts and other injuries. Consider asking volunteers to sign a liability waiver and photo-release form. These can be two documents, or combined into one. The form should explain any dangers associated with the clean-up event and reminds volunteers to act responsibly for their own safety. The form helps protect you and your organization from potential liability if a volunteer is injured. In addition, with their permission, it allows you to use photographs taken that day. Examples of these forms can be found on-line.

D. Introduce Yourself and Provide Opening Remarks: Introduce yourself, thank special guests, sponsors / project partners (who have helped by providing goods or services), and volunteers. If the media is there, they may want to interview you or for you to provide a brief quote. Consider preparing remarks ahead-of-time, and allowing any special guests to also provide opening remarks to the group.

The UPRP coordinators typically introduce themselves, and thank any special guests (city aldermen, city employees, etc.), sponsors (municipal and local), and volunteers themselves.

E. Provide Volunteers with a Brief Background / History of the Area(s): To acquaint new volunteers to your group / program and to the area, consider providing a brief background / history about the waterbody / area, distinguishing features, and its importance to the community. Consider showing volunteers a map of the waterbody and / or watershed. Also consider providing information such as points of interest, recent (or upcoming) restoration projects in the area, and / or information relative to water quality / monitoring, exotic species, other volunteer opportunities, etc.

Many of the UPRP volunteers are returning volunteers. However, with any new volunteers, we typically offer basic information on the program itself, as well as the watershed, inlet / outlet, history fun-facts, and any recent / upcoming restoration projects. We have fact sheets on each of our ponds on our website, which we can also direct them to for more information.

Manchester Urban Ponds Restoration Program

Nutts Pond Facts

- **Namesake:** Named after a local circus performer, "Commodore" George Washington Nutt
- **Location:** Driving Park Road, off of South Willow Street in south Manchester
- **Type of Waterbody:** Natural Pond fed by Tannery Brook
- **Inlet/Outlet:** Tannery Brook, flowing into Nutts Pond to the south of Home Depot, and emptying into the Merrimack River near the Riverwalk in downtown Manchester
- **Watershed Area:** 635 acres
- **Waterbody Size:** 16.1 acres
- **Volume of Water:** 260,500 m³
- **Mean/Average Water Depth:** 13.12 feet
- **Maximum Water Depth:** 30.10 feet
- **Shoreline Length:** 3,116 feet
- **Elevation:** 237 feet
- **Uses:** Paddling, fishing
- **Public Boat Launch:** Gravel, trailer or car-top
- **Amenities:** Prescourt Park athletic fields
- **Local Legend:** "Commodore" Nutt the circus performer who toured with the P.T. Barnum Circus show with Tom Thumb

Manchester Urban Ponds Restoration Program

The History of Nutts Pond

"Commodore" Nutt

Manchester Urban Ponds Restoration Program

Nutts Pond Stormwater Best Management Practices (BMP) Summary

F. Provide Necessary Supplies to Your Volunteers: Ensure your volunteers have ample supplies for the duration of the clean-up event. If they did not bring their own work gloves, request that they take two pairs of Latex gloves (in case one pair rips), and more than one trash bag, depending on the designated location(s). If your group is also removing yard waste, provide your volunteers with rakes and lawn-waste bags. Request that they return any unused pair of gloves, trash bags, and any supplies to you at the end of the clean-up event. Consider also leaving supplies out in a designated location along with the "Clean-Up Attendance Sheet" for volunteers who may show up late.

Many of the UPRP bring their own work gloves. We then issue two pairs of Latex gloves to each volunteer as well as multiple trash bags, depending on the specific area they will be cleaning up. We request that all unused supplies be returned at the end of the clean-up.

G. Provide Your Volunteers with Instructions for the Clean-Up Event: Provide your volunteers with instructions for the clean-up event such as what they will be retrieving (large trash only, all trash, etc.) what not to pick up (hypodermic needles, cigarette butts, etc.), if they are to separate trash from recycling or not (in which case they may carry two bags at once – different colors may be helpful - one for trash and one for recycling), what is considered recyclable if they are separating recycling from trash (this differs in each community and some vendors may not accept unclean / dirty recyclables from clean-up events), etc. Also provide your volunteers with safety tips and a general schedule of the clean-up event including the location to reconvene at the end and where to place trash. Ensure everyone knows there to focus their efforts and then to stop.

The UPRP typically only picks up large items, and does not typically separate trash from recycling, due to limited means. However, we have done so in the past and have provided volunteers with two trash bags – one for recycling, and one for trash.

H. Make It Fun! Play One or More Games While You're at It! Why not make things fun while you're out there picking up trash? Consider playing one or more games (especially if some of the volunteers are children) such as a scavenger hunt, who can find the most interesting or unusual piece of trash, who can find the largest piece of trash, who collects the most trash, etc. Consider offering a prize and / or certificate to the winner(s) of one or more of the games you play.

The UPRP has, for many years, asked volunteers to find the "Most Interesting or Unusual Piece of Trash" at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for "judging" by the coordinator(s) of the clean-up event. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken. We have found some really interesting an unusual pieces of trash over the years, and have kept a list!

I. Relinquish Groups of Volunteers / Group Leader(s) to Designated Area(s): If you are separating volunteers into more than one group for your clean-up event, relinquish the groups to their designated location(s). If you don't have a group leader for each group, relinquish them with their maps in hand. If you have a group leader be sure to introduce the volunteers in each group to their group leader before relinquishing them to their designated location(s). Remember to consider that not all locations may need the same number of volunteers.

The UPRP typically asks one or more returning volunteers if they would agree to be group leaders. Not all locations require the same amount of volunteers, however. This is decided based upon the area of the designated location(s), as well as the amount of trash to be removed in the designated location(s). For example, one small area along the shoreline may only require two volunteers, but a larger area in another location with a lot of trash may require 4-6 or more volunteers.

J. Reconvene at Initial Check-In Area at Designated Time: After the allotted period of time has elapsed for the clean-up event, reconvene at your initial check-in area. Account for all volunteers that did not sign out early.

The UPRP always meets at our initial check-in area. We then account for each group leader and group of volunteers (who did not sign out early) to ensure all have safely returned.

K. Count Full Bags of Trash (or Weigh All Trash): Count all full bags of trash that were collected and returned. If one or more bags are returned and are not considered full, consider consolidating them to make full bags of trash. That way, your measurements of "full bags" collected for this, and any other clean-up events, are consistently measured / counted. If your group has access to a scale, you consider weighing your bags of trash, and any other trash, to account for pounds of trash collected. Another option is to ask if the vendor who is charged with collecting the trash after the event can inform your group of the weight of the collection when the truck enters the scale at the weigh-station before drop-off at the refuse facility.

Since trash collected at UPRP clean-up events has not been weighed by a scale, and trash has been weighed by vendor truck only occasionally, to be consistent, we always count full bags at the site, and consolidate bags of trash that are returned not full in order to make full bags.

L. Account for and Count Other Items: Account for and count the quantity of other items of trash collected that cannot fit into bags.

The UPRP always accounts for and counts any trash that is collected that cannot be bagged. This typically includes vehicular tires, shopping carts, wood debris, construction debris, or any other items that have been illegally dumped.

***M.* Share the Data with Volunteers:** Once you have tallied the final numbers of bags of trash and other items collected during the clean-up event, announce them to your volunteers so they know just how much trash and other debris they removed from the area, know how important their contribution of time and efforts were, and have immediate results of their work!

N. Tally Final Numbers on Clean-Up Attendance Sheet: Once you have tallied everything collected, write these numbers on your "Clean-Up Attendance Sheet".

O. Take Photographs: To commemorate the success of your clean-up event, take a photo of the trash collected, and of the group of volunteers who helped collect it!

The UPRP always photographs the trash collected (in and out of bags), as well as takes a group photograph in front of or aside the trash collected.

P. Award a Prize, or Two, or Three: If you played one or more games during the clean-up event, consider awarding a certificate or prize to your winner(s) and photographing them with their winning piece of trash!

The UPRP has, for many years, asked volunteers to find the "Most Interesting or Unusual Piece of Trash" at each clean-up event. At the end of the clean-up, volunteers will place their found items in one location for "judging" by the coordinator(s) of the clean-up. Certificates and / or prizes have been awarded to the winner(s), and photos have been taken.

Q. Thank the Volunteers: Before parting ways, be sure to thank your volunteers for their assistance! Encourage them to volunteer again. Be sure to individually thank any special guests (aldermen / selectmen, city employees, media, etc.).

At the end of each clean-up event, the UPRP notes upcoming clean-up events in order to encourage volunteers to return for the next event.

Above Left: Volunteers at the 100th Cleanup of the Manchester Urban Ponds Restoration Program.

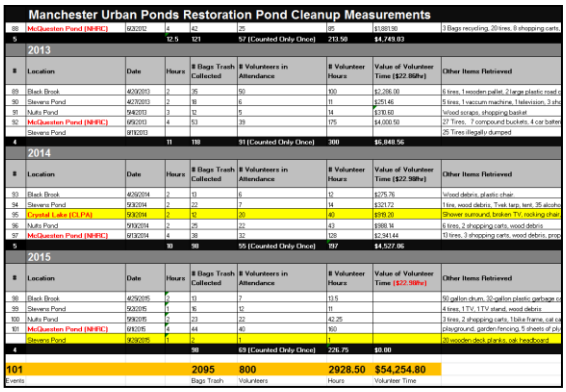
Above Right: Cake served to volunteers at the 100th official cleanup of the Manchester Urban Ponds Restoration Program .

R. Consider Having a Picnic / Cookout / or Lunch: If you have the financial means, consider having a picnic / cookout / lunch afterwards to celebrate your accomplishment. Or, consider soliciting local vendors for food donations in exchange for sponsor / partnership recognition at your clean-up event. If you're not able to make or supply lunch, consider encouraging volunteers to bring a brown-bag lunch for afterwards.

Step 7: Follow Up After the Clean-Up Event

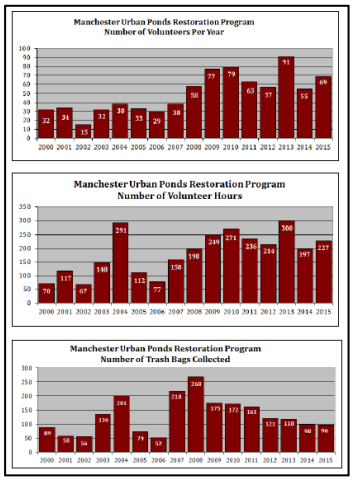
A. Update Your Electronic Records: Now is the time to transpose the information collected on the "Clean-Up Attendance Sheet" into an electronic record-retention system if you have access to one. Perhaps you have access to a database. If not, consider using a Microsoft Excel workbook / spreadsheet system to track measurements from your clean-up events. Now is also the time to update your existing e-mail distribution list with the names and e-mail addresses of those volunteers who participated in your clean-up event.

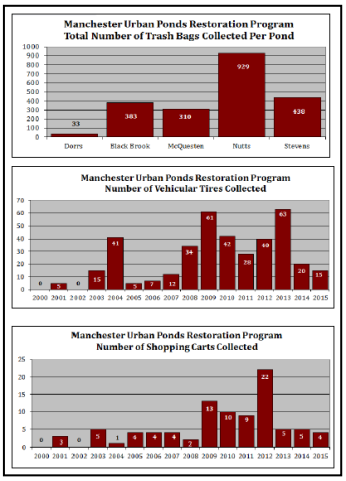
The UPRP has consistently used Microsoft Excel to track clean-up measurements. In the first worksheet of the workbook, we account for the number of our clean-up event, the location, date, hours spent at the event, numbers of bags of trash collected at the event, number of volunteers at the event, number of volunteer hours at the event, total value of volunteer time for the event, and other items retrieved at the event. For each year tracked, we created a "total" line with auto-calculations to account for the total of each year. To account for the value of volunteer time, we use figures taken from www.independentsector.org. In the second worksheet of the workbook, we account for pond cleanup attendees, where, for each clean-up event, we list the location, date, names (in alphabetical order), address, and hours at event. Similarly, for each year tracked, we created a "total" line. In the third worksheet of the workbook, we have created graphs based upon each year's total metrics. We then transpose these graphs to a Microsoft Word document, then an Adobe PDF document, and post on our website, and at the kiosks.



Manchester Urban Ponds Restoration Pond Cleanup Measurements

#	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time ($22.95/hr)	Other Items Retrieved
88	McQuesten Pond (NHFIC)	4/3/2012	4	42	25	85	$1,881.30	3 Bags recycling, 20 tires, 8 shopping carts
5			12.5	121	57 (Counted Only Once)	213.50	$4,749.93	
	2013							
89	Black Brook	4/29/2013	2	35	50	100	$2,295.00	6 tires, 1 wooden pallet, 2 large plastic road c
90	Stevens Pond	4/29/2013	2	16	6	11	$251.46	5 tires, 1 vacuum machine, 1 television, 2 sh
91	Nutts Pond	5/4/2013	3	12	5	14	$310.60	Wood scraps, shopping basket
92	McQuesten Pond (NHFIC)	6/5/2013	4	53	39	175	$4,000.50	27 Tires, 7 compound buckets, 4 car batter
	Stevens Pond	6/18/2013						25 Tires illegally dumped
4			11	118	91 (Counted Only Once)	300	$6,848.56	
	2014							
#	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time ($22.95/hr)	Other Items Retrieved
93	Black Brook	4/26/2014	2	13	6	12	$275.76	Wood debris, plastic chair
94	Stevens Pond	5/3/2014	2	22	7	14	$321.72	1 tire, wood debris, Tivek tarp, tent, 35 alcohe
95	Crystal Lake (CL) PA)	5/3/2014	2	10	20	40	$919.20	Shower surround, broken TV, rocking chair
96	Nutts Pond	5/10/2014	2	25	22	43	$988.14	6 tires, 2 shopping carts, wood debris
97	McQuesten Pond (NHFIC)	6/13/2014	4	38	32	128	$2,941.44	13 tires, 3 shopping carts, wood debris, prop
5			10	108	55 (Counted Only Once)	197	$4,527.06	
	2015							
#	Location	Date	Hours	# Bags Trash Collected	# Volunteers in Attendance	# Volunteer Hours	Value of Volunteer Time ($22.95/hr)	Other Items Retrieved
98	Black Brook	4/25/2015	2	13	7	13.5		50 gallon drum, 32 gallon plastic garbage c
99	Stevens Pond	5/2/2015	2	16	12	11		4 tires, 1 TV, 1 TV stand, wood debris
100	Nutts Pond	5/9/2015	2	23	22	42.25		3 tires, 2 shopping carts, 1 bike frame, cat ca
101	McQuesten Pond (NHFIC)	6/1/2015	4	44	40	160		playground, garden fencing, 5 sheets of pla
	Stevens Pond	6/16/2015	1	1	1	1		10 wooden deck planks, oak headboard
4			10	98	69 (Counted Only Once)	226.75	$0.00	
101				2095	800	2928.50	$54,254.80	
Events				Bags Trash	Volunteers	Hours	Volunteer Time	





B. Follow Up With an E-mail or Thank-You Note: It is always nice to follow up with your new (and / or returning) volunteers by sending them a formal personalized thank-you via e-mail or US Postal Service. Besides, who doesn't like receiving a letter in the letter box, especially in this electronic day-in-age?

The UPRP, has, on occasion, sent personalized thank-you cards in the mail. Typically, however, we send a group thank-you via e-mail and attach photographs taken at the event(s), as well as re-cap tallies from the clean-up event(s).

C. Consider Writing an Article for Your Newsletter or the Newspaper: Consider writing an article for your newsletter, if you have one, or a local newsletter or newspaper, summarizing the event with photographs and tallies from the event. Volunteers who helped out at your clean-up event will feel proud of their accomplishment and the results. This is a good way to garner publicity about your group and its event as well as garner additional volunteers in the future.

The UPRP has often written newspaper articles and / or shared summary information about the clean-up events (at the end of the season) listing sponsors / project partners and volunteers, and including photographs of volunteers at the event, via an electronic newsletter.

From 2000 - 2005 **The Manchester Urban Ponds Restoration Program** (UPRP) was part of the Supplemental Environmental Projects Plan (SEPP) which was part of an agreement between the City of Manchester, NH Department of Environmental Services, and the US Environmental Protection Agency to address combined sewers in the City. Seven (7) waterbodies in Manchester have been evaluated and monitored for restoration potential. Specific restoration projects to meet the program's goals have also been identified, funded, and completed through this project. Since 2000, the Manchester Urban Ponds Restoration Program has organized 101 clean-up events. Over the past 15 years, 800 volunteers have spent 2,298.50 hours collecting 2,093 bags of trash! This does not include the items illegally "dumped" such as shopping carts (91), tires (388), car batteries, other car parts, construction debris, and other items. In addition, the value of volunteer time spent at these clean-ups has amounted to over $54,000 over the past 15 years! The Manchester Urban Ponds Restoration Program was awarded an EPA "Environmental Merit Award" in 2011. More information on the Manchester Urban Ponds Restoration Program can be found by visiting www.manchesternh.gov/urbanponds.

Jen Drociak lives in Manchester, NH and holds a Bachelor of Science degree in Environmental Conservation from the University of New Hampshire. She is employed with the New Hampshire Department of Environmental Services where she has worked as a program specialist for the Pollution Prevention Program, a restoration specialist for the NH Coastal Program where she established a monitoring program for pre- and post-restoration projects in NH's salt marshes, and as the Volunteer River Assessment Program Coordinator where she provided technical assistance to approximately 200 volunteers who collected water quality samples for surface water quality assessments on NH's rivers and streams. Jen has also worked for the Wastewater Engineering Bureau as a grants management specialist and is currently working for the Land Resources Management Bureau as a compliance specialist. Since 2000, Jen has also been involved with the Manchester Urban Ponds Restoration Program, and has served as acting coordinator since 2006 where she largely coordinates annual clean-up events and water quality monitoring.

Appendix F

Record Keeping

Appendix F
Record Keeping – Checklist of Key Documentation

MCM 1: Public Education and Outreach

- ☐ All educational materials provided to target audiences;
- ☐ Distribution lists for target audiences;
- ☐ Dates of distribution of educational materials;
- ☐ Annually track changes in social media subscription and use; and
- ☐ Note educational goals and opinion on effectiveness based on results tracked; modify education and outreach program if necessary.

MCM 2: Public Involvement and Participation

- ☐ Public meeting dates and topics when stormwater management-related topic is discussed; and
- ☐ Dates of public participation activities and quantification of participation (such as number of volunteers/participants, number of bags collected, etc.).

MCM 3: Illicit Discharge Detection and Elimination (IDDE) Program

- ☐ Log of phone calls and complaints received regarding suspected illicit connections and other storm drain issues, including dates and actions taken;
- ☐ SSO inventory (updated annually), including the number of illicit discharges/ connections identified and/or removed and the volume of sewage removed;
- ☐ Drainage system map;
- ☐ Data collected during dry and wet weather outfall/interconnection investigations, including the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening results, and results of all analyses (summarize on an annual basis and for the entire permit term);
- ☐ Number and percent of total outfall catchments served by the MS4 evaluated using the catchment investigation procedure;
- ☐ Presence or absence of System Vulnerability Factors for each catchment;
- ☐ Data collected during key junction manhole investigations;
- ☐ Inspection and maintenance records; and
- ☐ Frequency and type of employee training, including employees trained, training topic, date/time, and materials presented.

MCM 4: Construction Site Stormwater Runoff Control

- ☐ Number of site reviews, inspections, and enforcement actions; and
- ☐ Modifications to Littleton's bylaws, regulations, policies, and/or procedures as necessary.

Appendix F
Record Keeping – Checklist of Key Documentation

MCM 5: Post-Construction Stormwater Management

- ☐ Measures the Town has taken to ensure adequate long-term operation and maintenance of stormwater BMPs and to require submission of as-built plans;
- ☐ Modifications to Littleton's bylaws, regulations, policies, and/or procedures as necessary;
- ☐ Status of BMP 5B and 5C assessments, including any planned or completed changes to local regulations and guidelines (BMP 5B) and findings and progress towards making the practices allowable (BMP 5C); and
- ☐ Retrofit inventory, including all sites that have been modified or retrofitted. Sites should include town-owned sites identified in the inventory as well as non-municipal property modified or retrofitted to mitigate impervious area.

MCM 6: Good Housekeeping and Pollution Prevention

- ☐ Inventory of municipal facilities and equipment;
- ☐ Plan for optimizing catch basin cleaning and metrics about the number of catch basins, quantity cleaned and inspected, and total volume of material removed from all catch basins;
- ☐ Miles of streets cleaned and the volume of material removed; and
- ☐ All records associated with SWPPP quarterly site inspections, maintenance activities, and training.

Impaired Waters and TMDLs

Phosphorus Impairment – Long Pond

- ☐ All educational materials provided to target audiences;
- ☐ Distribution lists for target audiences;
- ☐ Dates of distribution of educational materials;
- ☐ Modifications to Littleton's bylaws, regulations, policies, and/or procedures as necessary;
- ☐ Plan for proper management of grass cuttings and leaf litter;
- ☐ Miles of streets cleaned and the volume of material removed – increase sweeping to twice per year in Long Pond watershed;
- ☐ Phosphorus Source Identification Report;
- ☐ Retrofit inventory and list of planned structural BMPs with plan and schedule for implementation; and
- ☐ Estimated phosphorus removal by structural BMPs in Littleton's regulated area.

Impaired Waters and TMDLs, cont.

Bacteria or Pathogens Impairment – Beaver Brook, Reedy Meadow Brook, Bennetts Brook

- ☐ All educational materials provided to target audiences;
- ☐ Distribution lists for target audiences;
- ☐ Dates of distribution of educational materials; and
- ☐ Records from IDDE Program implementation.

Solids Impairment – Beaver Brook

- ☐ Modifications to Littleton's bylaws, regulations, policies, and/or procedures as necessary;
- ☐ Miles of streets cleaned and the volume of material removed – increase sweeping frequency in areas with potential for high pollutant loads in Beaver Brook watershed;
- ☐ Prioritize catch basin inspection and maintenance to ensure no sump is more than 50 percent full; track metrics about the number of catch basins, quantity cleaned and inspected, and total volume of material removed from all catch basins; and
- ☐ Street sweeping schedule.

Phosphorus TMDL – Assabet River Watershed

- ☐ All educational materials provided to target audiences;
- ☐ Distribution lists for target audiences;
- ☐ Dates of distribution of educational materials;
- ☐ Modifications to Littleton's bylaws, regulations, policies, and/or procedures as necessary;
- ☐ Plan for proper management of grass cuttings and leaf litter; and
- ☐ Miles of streets cleaned and the volume of material removed – increase sweeping to twice per year in Assabet River watershed.

Additional Record Keeping

- ☐ Monitoring results;
- ☐ Copies of reports;
- ☐ Records of outfall/interconnection screening;
- ☐ Follow-up and elimination of illicit discharges;
- ☐ Maintenance records; and
- ☐ Inspection records.

Tighe&Bond

MS4 Record Keeping Update
Littleton, MA
September 2020

The Town's Stormwater Management Program has been appended through the Permit term, including development of the following standalone reports. These reports are available from the Littleton Highway Department.

The **IDDE Program** has been updated to include:

- Illicit Discharge Detection and Elimination Program, December 2017
- Sanitary Sewer Overflow Inventory, updated annually
- Littleton Outfall Inventory and Dry Weather Screening Field Effort Summary, August 2017
- Littleton FY18 Outfall Inventory and Dry Weather Screening Field Effort Summary, June 2018
- Littleton FY19 Outfall Inventory and Dry Weather Screening Field Effort Summary, January 2019
- Littleton MS4 Catchment Investigation Procedures, December 2019
- Phase I MS4 System Map, September 2020

The **Construction and Post-Construction Programs** have been updated to include:

- Chapter 38, Article II of the Town's General Bylaws, Stormwater Management and Erosion Control, requires the submission of as-built drawings and long-term operation and maintenance of completed construction sites. Available online here: https://www.ecode360.com/32915739

The **Municipal Good Housekeeping Program** has been updated to include:

- Good Housekeeping and Pollution Prevention Operations and Maintenance Plan, June 2020
- Highway Department and Electric, Light, and Water Departments Stormwater Pollution Prevention Plan, February 2019
- Transfer Station Stormwater Pollution Prevention Plan, in final review

Reporting includes:

- Year 1 Annual Report and attachments:
  - Delegating an "Authorized Representative" Documentation
  - Sanitary Sewer Overflow Inventory 2013 – June 30, 2019
  - Illicit Discharge Removal Report – 32 Lochslea Road
  - Outfall and Interconnection Inventory and Initial Ranking, including Outfall Investigation Screening Summary *(available electronically)*
  - Clean Lakes Committee – Littleton 2018 Results, Surface Water Quality Monitoring
- Year 2 Annual Report and attachments:
  - Summary of Littleton's TMDLs and Impaired Waters

Permit Year 1 Annual Report

Year 1 Annual Report
Massachusetts Small MS4 General Permit
Reporting Period: May 1, 2018-June 30, 2019

Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed.

Part I: Contact Information

Name of Municipality or Organization: Town of Littleton

EPA NPDES Permit Number: MA041204

Primary MS4 Program Manager Contact Information

Name: Chris Stoddard, P.E. Title: Director of Public Works

Street Address Line 1: 39 Ayer Road

Street Address Line 2:

City: Littleton State: MA Zip Code: 01460

Email: cstoddard@littletonma.org Phone Number: (978) 540-2670

Fax Number:

Stormwater Management Program (SWMP) Information

SWMP Location (web address): https://www.littletonma.org/stormwater

Date SWMP was Last Updated: May 2019

If the SWMP is not available on the web please provide the physical address and an explanation of why it is not posted on the web:

Part II: Self Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4.

Impairment(s)

☒ Bacteria/Pathogens ☐ Chloride ☐ Nitrogen ☒ Phosphorus
☒ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

TMDL(s)

In State: ☒ Assabet River Phosphorus ☐ Bacteria and Pathogen ☐ Cape Cod Nitrogen
☐ Charles River Watershed Phosphorus ☐ Lake and Pond Phosphorus

Out of State: ☐ Bacteria/Pathogens ☐ Metals ☐ Nitrogen ☐ Phosphorus

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 1 Requirements

- ☒ Develop and begin public education and outreach program
- ☒ Identify and develop inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
  - ◉ The SSO inventory is attached to the email submission
  - ○ The SSO inventory can be found at the following website:
- ☒ Develop written IDDE plan including a procedure for screening and sampling outfalls
- ☒ IDDE ordinance complete
- ☒ Identify each outfall and interconnection discharging from MS4, classify into the relevant category, and priority rank each catchment for investigation
  - ◉ The priority ranking of outfalls/interconnections is attached to the email submission
  - ○ The priority ranking of outfalls/interconnections can be found at the following website:
- ☒ Construction/ Erosion and Sediment Control (ESC) ordinance complete
- ☒ Develop written procedures for site inspections and enforcement of sediment and erosion control measures
- ☒ Develop written procedures for site plan review
- ☒ Keep a log of catch basins cleaned or inspected
- ☐ Complete inspection of all stormwater treatment structures

Annual Requirements

- ☒ Annual opportunity for public participation in review and implementation of SWMP
- ☒ Comply with State Public Notice requirements
- ☒ Keep records relating to the permit available for 5 years and make available to the public
- ☒ Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- ☒ Annual training to employees involved in IDDE program
- ☒ All curbed roadways have been swept a minimum of one time per year

Bacteria/ Pathogens (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Annual message encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☐ Permittee or its agents disseminate educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☒ Provide information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Phosphorus (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Distribute an annual message in the spring (April/May) that encourages the proper use and disposal of grass clippings and encourages the proper use of slow-release and phosphorus-free fertilizers
- ☒ Distribute an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☒ Distribute an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

- ☐ Increase street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

- ☐ Any structural BMPs listed in Attachment 3 to Appendix F already existing or installed in the regulated area by the permittee or its agents shall be tracked and the permittee shall estimate the phosphorus removal by the BMP consistent with Attachment 1 to Appendix H. Document the BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP in each each annual report

Solids, Oil and Grease (Hydrocarbons), or Metals

Annual Requirements

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

☒ Increase street sweeping frequency of all municipal owned streets and parking lots to a schedule to target areas with potential for high pollutant loads

☒ Prioritize inspection and maintenance for catch basins to ensure that no sump shall be more than 50 percent full; Clean catch basins more frequently if inspection and maintenance activities indicate excessive sediment or debris loadings

Use the box below to input additional details on any unchecked boxes above or any additional information you would like to share as part of your self assessment:

Year 1 Requirements, Inspect all stormwater treatment structures: Mapping of structural BMPs and stormwater treatment structures is ongoing and not due until Permit Year 2. Therefore, while some BMPs were inspected during Permit Year 1 on an as-needed basis, not all were inspected. This will begin after Town-owned structural BMPs and treatment structures have been identified and mapped as part of Phase I mapping efforts and SOPs for inspection and maintenance are developed in the Town-wide Good Housekeeping Program in Permit Year 2.

Bacteria/Pathogens Public Education and Outreach: While disseminating information about proper pet waste management during dog license renewals was not completed during Permit Year 1, educational materials about proper pet waste management have been posted on the Town's website and placed on display at municipal buildings throughout the Permit Year. The Town intends to begin distributing messaging during dog license renewals in Permit Year 2.

Phosphorus/Solids Good Housekeeping: All paved streets are swept at least once annually, and priority areas are swept more as needed. The Town plans to increase the street sweeping frequency in the Assabet River watershed in future Permit Years to meet impairment and TMDL requirements, and is currently working with their stormwater consultant to develop an updated street sweeping map.

Phosphorus Potential Structural BMPs: Mapping of structural BMPs and stormwater treatment structures is ongoing and not due until Permit Year 2. Therefore, BMPs have not been tracked or estimated for phosphorus removal. This will begin after Town-owned structural BMPs and treatment structures have been identified and mapped as part of Phase I mapping efforts.

Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

Yes ☒ No ☐

If yes, describe below, including any relevant impairments or TMDLs:

During Permit Year 1, the Town has modified its outfall mapping due to outfall investigation field work. 1 new outfall was added to the MS4 mapping and 8 outfalls were removed from the MS4 mapping because they are private or a different type of drainage structure (e.g., culvert, BMP inlet). These modifications did not add or change any receiving waterbodies or impairments/TMDLs listed in the NOI.

Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed during the reporting period: 6

Below, report on the educational messages completed during the first year. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.

BMP: 1A: Education and Outreach to Residents (Multi-Media Methods)

Message Description and Distribution Method:

1. The Town is a member of the Northern Middlesex Stormwater Collaborative (NMSC), which participated in the Think Blue Massachusetts educational advertisement campaign. Think Blue Massachusetts created a baseline survey to gauge community knowledge on stormwater, released an advertising campaign that targeted member communities, and carried out a follow-up survey to measure the impact of the advertising campaign. A "Fowl Water" video was shared across Facebook, Instagram, and YouTube to educate the public on stormwater runoff, and highlighted proper pet waste management as an example. The Town also shared the video on its Facebook page to further the educational campaign.

2. The Town has a robust stormwater webpage that includes links to the Town's SWMP, stormwater reports, stormwater presentations, and bylaws and regulations for the public to access. The stormwater page includes a link to the NMSC website, which provides educational information for residents about stormwater and how they can reduce their contributions to polluting stormwater runoff, proper lawn care and use of fertilizers, how to properly dispose of yard waste (such as leaves and grass clippings), and properly managing pet waste.

3. The Town posted a link to the draft SWMP on its Facebook page to solicit public comments.

4. On its Facebook page, the Town has also posted messages about litter and advertised the Smart Sewer Question and Answer Forum held in October 2018. The Forum was also recorded and posted to LCTV, Littleton's local access cable channel.

5. Enviroscape Lesson for 4th Graders: The Town's stormwater consultant taught this lesson plan, developed by the Water Department, during the annual 4th grade field trip to the LELWD Facility. Students learned how watersheds function, how pollutants like pet waste, sediment, and fertilizers are carried with stormwater into receiving waters, and best practices to prevent stormwater pollution.

6. The LELWD posted a video on its website by the Northern Middlesex Stormwater Collaborative to educate the public about source of stormwater runoff such as fuel, paint, pesticides, cleaning agents, pet waste, car washing, and septic system management. The LELWD website also includes a link to Littleton's Low Impact Design/Best Management Practices Manual for the public to view.

Targeted Audience: Residents

Responsible Department/Parties: Water Department, Clean Lakes Committee

Measurable Goal(s):

1. ThinkBlue Video: The follow-up survey indicated that 15.25% of respondents recalled seeing the "Fowl Water" video and those that saw the video were more likely to correctly answer that stormwater pollution ends up in local waterways. The ad campaign received 11,094 impressions across Facebook, Instagram, and YouTube for Littleton.
2. and 6. Stormwater, NMSC, and LELWD webpages: Messaging is available to all visitors of these webpages.
3. SWMP posted on Facebook: There were 3 shares, comments, and likes on the post.
4. Litter messaging posted on Facebook: There were 9 shares, comments, and likes on the post.
4. Smart Sewer Q&A Forum: 74 residents attended the Forum and the LCTV video was viewed 42 times.
5. Enviroscape lesson at the LELWD facility: Students from the 4th grade class and chaperones were in attendance, and participated in the lesson.

Message Date(s):

1. ThinkBlue ad campaign was conducted June 23 to July 12, 2019. Littleton shared the video on 6/27/19.
2. Stormwater webpage: Ongoing
3. SWMP posted on Facebook: 6/5/19
4. Litter messaging posted on Facebook: 6/17/19
4. Smart Sewer Q&A Forum held on 10/24/18
5. Enviroscape lesson at the LELWD facility: 6/18/18
6. LELWD webpage: Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ☐ No ☒

If yes, describe why the change was made:

Add an Educational Message

MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) during the reporting period:

The Stormwater Management Plan (SWMP) was posted for public review and made publicly available on the Town's website and Facebook page. The Board of Selectmen held a meeting on September 24, 2018 to discuss the SWMP with the public. The Conservation Commission also held a meeting on September 24, 2018 to educate the public on the MS4 permit and to review the SWMP. Public input and feedback was solicited at these meetings. The Town followed Massachusetts Public Notice requirements and posted the Board of Selectmen meeting on September 18, 2018 and the Conservation Commission meeting on September 20, 2018.

Was this opportunity different than what was proposed in your NOI? Yes ☐ No ☒

Describe any other public involvement or participation opportunities conducted during the reporting period:

The Town provides many opportunities for the public to participate in pollution prevention and cleanup events. The second annual Littleton Community Clean-up Day was held on April 28, 2019 throughout the entire Town. A Zero Waste Day was held on June 15, 2019 at the Littleton High School, with a free drive-thru drop off for items such as electronics, batteries, books, and clothing. On the first Wednesday and following Saturday of each month, residents can bring their household hazardous waste to Devens Regional Household Hazardous Products Collection Center for a small fee. Residents were encouraged to dispose of their Christmas trees for free at the transfer station from December 27, 2018 to January 12, 2019.

The Town held a Smart Sewer Question and Answer Forum on October 24, 2018. The Forum was also recorded and posted to LCTV, Littleton's local access cable channel.

LELWD held a hands-on Enviroscape demonstration and lesson on June 18, 2018 for 4th grade students to teach them about how watersheds function and what contributes to stormwater runoff.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Below, report on the number of SSOs identified in the MS4 system and removed during this reporting period.

Number of SSOs identified: 0

Number of SSOs removed: 0

Below, report on the total number of SSOs identified in the MS4 system and removed to date. At a minimum, report SSOs identified since 2013.

Total number of SSOs identified: 0

Total number of SSOs removed: 0

MS4 System Mapping

Describe the status of your MS4 map, including any progress made during the reporting period (phase I map due in year 2):

Littleton has hired sumer interns to complete field work to verify and improve drainage system mapping and connectivity. Phase I mapping elements are largely complete. Substantial progress has been made to improve Phase II mapping elements, including manholes, catch basins, and connectivity. The Town will continue to improve the map as modifications are made and the IDDE Program is implemented.

Screening of Outfalls/Interconnections

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.

- ○ The outfall screening data is attached to the email submission
- ◉ The outfall screening data can be found at the following website:

https://www.littletonma.org/stormwater/pages/idde-field-work

Below, report on the number of outfalls/interconnections screened during this reporting period.

Number of outfalls screened: 260

Below, report on the percent of total outfalls/ interconnections screened to date.

Percent of total outfalls screened: 90%

Catchment Investigations

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

- ○ The catchment investigation data is attached to the email submission
- ○ The catchment investigation data can be found at the following website:

Below, report on the number of catchment investigations completed during this reporting period.

Number of catchment investigations completed this reporting period: 0

Below, report on the percent of catchments investigated to date.

Percent of total catchments investigated: 0

Optional: Provide any additional information for clarity regarding the catchment investigations below:

No catchment investigations were completed in Permit Year 1 as investigations of problem catchments are not required to begin until Permit Year 2. Additionally, the Town has not identified any problem catchments.

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

- ◉ The illicit discharge removal report is attached to the email submission
- ○ The illicit discharge removal report can be found at the following website:

Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed during this reporting period.

Number of illicit discharges identified: 1

Number of illicit discharges removed: 1

Estimated volume of sewage removed: N/A [UNITS]

Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed since the effective date of the permit.

Total number of illicit discharges identified: 1

Total number of illicit discharges removed: 1

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

Employee Training

Describe the frequency and type of employee training conducted during the reporting period:

Summer interns with the DPW were trained by the Town's stormwater consultant on dry weather screening outfall investigations and protocols prior to completing field work. Town staff regularly attend Northern Middlesex Stormwater Collaborative meetings, where IDDE Program topics are discussed.

MCM4: Construction Site Stormwater Runoff Control

Below, report on the construction site plan reviews, inspections, and enforcement actions completed during this reporting period.

Number of site plan reviews completed: 16

Number of inspections completed: 26+

Number of enforcement actions taken: 1

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

Ordinance Development

Describe the status of the post-construction ordinance required to be complete in year 2 of the permit term:

The Town's stormwater management bylaw and regulations are in place. The Planning Board has authority to revise the Town's stormwater regulations as necessary for General Permit compliance and will do so if needed in Permit Year 2.

As-built Drawings

Describe the status of the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites required to be complete in year 2 of the permit term:

Complete. Chapter 38, Article II of the Town's General Bylaws, Stormwater Management and Erosion Control, required the submission of as-built drawings and long-term operation and maintenance of completed construction sites.

Street Design and Parking Lots Report

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

Preparation for the Street Design and Parking Lots Report has not yet begun as this requirement is due in Permit Year 4.

Green Infrastructure Report

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

Preparation for the Green Infrastructure Report has not yet begun as this requirement is due in Permit Year 4.

Retrofit Properties Inventory

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

Preparation for the Retrofit Properties Inventory has not yet begun as this requirement is due in Permit Year 4.

MCM6: Good Housekeeping

Catch Basin Cleaning

Describe the status of the catch basin cleaning optimization plan:

The plan will be formalized during development of a written operation and maintenance plan in Permit Year 2.

If complete, attach the catch basin cleaning optimization plan or the schedule to gather information to develop the optimization plan:

- ○ The catch basin cleaning optimization plan or schedule is attached to the email submission
- ○ The catch basin cleaning optimization plan or schedule can be found at the following website:

N/A

Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins during this reporting period.

Number of catch basins inspected: 719

Number of catch basins cleaned: 719

Total volume or mass of material removed from all catch basins: 80 (est.) CY

Below, report on the total number of catch basins in the MS4 system, if known.

Total number of catch basins: 1,788

If applicable:

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

All Town-owned catch basins were cleaned between 2017 and 2019. The number listed above includes only those cleaned during Permit Year 1. Cleaning status is tracked in a tablet-based GIS program, which can be used in future Permit Years to identify any areas in Town that experience excessive sediment loading.

Street Sweeping

Describe the status of the written procedures for sweeping streets and municipal-owned lots:

Written procedures for street sweeping will be formalized during development of a written operation and maintenance plan in Permit Year 2.

Report on street sweeping completed during the reporting period using one of the three metrics below.

- ◉ Number of miles cleaned: 62.2
- ○ Volume of material removed: [UNITS]
- ○ Weight of material removed: [UNITS]

If applicable:

For rural uncurbed roadways with no catch basins, describe the progress of the inspection, documentation, and targeted sweeping plan:

Winter Road Maintenance

Describe the status of the written procedures for winter road maintenance including the storage of salt and sand:

Written procedures for winter road maintenance will be formalized during development of a written operation and maintenance plan in Permit Year 2. Salt and sand stockpiled at the Highway Facility is covered.

Inventory of Permittee-Owned Properties

Describe the status of the inventory, due in year 2 of the permit term, of permittee-owned properties, including parks and open spaces, buildings and facilities, and vehicles and equipment, and include any updates:

The Town possesses institutional knowledge of Town-owned properties to be included in the inventory. The Town will develop a written inventory during Permit Year 2.

O&M Procedures for Parks and Open Spaces, Buildings and Facilities, and Vehicles and Equipment

Describe the status of the operation and maintenance procedures, due in year 2 of the permit term, of permittee-owned properties (parks and open spaces, buildings and facilities, vehicles and equipment) and include maintenance activities associated with each:

Operation and maintenance procedures associated with the properties included in the inventory will be formalized during development of a written operation and maintenance plan in Permit Year 2.

Stormwater Pollution Prevention Plan (SWPPP)

Describe the status of any SWPPP, due in year 2 of the permit term, for permittee-owned or operated facilities including maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater:

A draft SWPPP has been prepared for the Littleton Highway Department and Electric, Light, and Water Departments facility. It will be finalized in Permit Year 2. The Town will identify if any additional properties and facilities are in need of a SWPPP and will prepare these in accordance with the General Permit by the end of Permit Year 2.

Below, report on the number of site inspections for facilities that require a SWPPP completed during this reporting period.

Number of site inspections completed: N/A

Describe any corrective actions taken at a facility with a SWPPP:

N/A

O&M Procedures for Stormwater Treatment Structures

Describe the status of the written procedure for stormwater treatment structure maintenance:

Written procedures for operation and maintenance of stormwater treatment structures will be formalized during development of a written operation and maintenance plan in Permit Year 2.

Additional Information

Monitoring or Study Results

Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- ○ Not applicable
- ◉ The results from additional reports or studies are attached to the email submission
- ○ The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

Littleton Clean Lakes Committee sponsors ongoing surface water quality monitoring in Littleton and Westford that inform the Stormwater Management Program, especially public education and IDDE. The 2018 report is attached.

Additional Information

Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

The Town of Littleton a portion of the dry weather screening field effort prior to Permit Year 1. The Town has attempted to investigate and screen 100% of the MS4 outfalls, but could not locate some. The Town continues to implement its IDDE Program to field locate and screen outfalls that could not previously be located. The outfall inventory included with this annual report includes the results of the screening effort. Summary memoranda are also available online, outlining the work that has been completed to date.

Activities Planned for Next Reporting Period

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 2 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Complete system mapping Phase I

- Begin investigations of catchments associated with Problem Outfalls
- Develop or modify an ordinance or other regulatory mechanism for post-construction stormwater runoff from new development and redevelopment
- Establish and implement written procedures to require the submission of as-built drawings no later than two years after the completion of construction projects
- Develop, if not already developed, written operations and maintenance procedures
- Develop an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; review annually and update as necessary
- Establish a written program detailing the activities and procedures the permittee will implement so that the MS4 infrastructure is maintained in a timely manner
- Develop and implement a written SWPPP for maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater
- Enclose or cover storage piles of salt or piles containing salt used for deicing or other purposes
- Develop, if not already developed, written procedures for sweeping streets and municipal-owned lots
- Develop, if not already developed, written procedures for winter road maintenance including storage of salt and sand
- Develop, if not already developed, a schedule for catch basin cleaning
- Develop, if not already developed, a written procedure for stormwater treatment structure maintenance
- Develop a written catchment investigation procedure *(18 months)*

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4 in the last 5 years
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all uncurbed streets at least annually

Provide any additional details on activities planned for permit year 2 below:

The Town intends to comply with the General Permit Year 2 requirements.

Part V: Certification of Small MS4 Annual Report 2019

40 CFR 144.32(d) Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:	Chris Stoddard, P.E.	Title:	Director of Public Works
Signature:		Date:	9-30-19

[Signatory may be a duly authorized representative]

September 23, 2019

Ms. Thelma Murphy
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

Re: NPDES MA Small MS4 General Permit
Delegating an "Authorized Representative"

Dear Ms. Murphy:

This letter serves to designate the Town of Littleton **Town Administrator** as an authorized person for signing the Stormwater Management Plan (SWMP) and annual reports, and the Town of Littleton **Director of the Department of Public Works** as an authorized person for signing stormwater pollution prevention plans (SWPPPs), inspection reports, annual reports, monitoring reports, reports on training, and other information required under the General Permit. This authorization cannot be used for signing a NPDES permit application (e.g., Notice of Intent (NOI)) in accordance with 40 CFR 122.22.

By signing this authorization, I confirm that the Board of Selectmen meets the following requirements to make such a designation as set forth in Appendix B, Subparagraph 11 of the Small MS4 General Permit:

> *For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).*

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely,

Joseph Knox, Chair
Littleton Board of Selectmen

Town of Littleton

Sanitary Sewer Overflow Inventory

No sanitary sewer overflows have occurred from 2013 through June 30, 2019.

Illicit Discharge Removal Report – 32 Lochslea Road

To: Town of Littleton Stormwater Management Files

DATE: September 2019

A suspected illicit discharge to a catch basin was discovered by Town employees on August 1, 2018 at 32 Lochslea Road during routine catch basin cleaning. Personnel observed a one-inch black PVC pipe discharging to the catch basin, and standing water in the catch basin smelled strongly of chlorine. On August 2, 2018, field staff tested the water in the catch basin pool for chlorine using a Hach Pocket Colorimeter test kit. The resulting concentration was 2.20 mg/L. Staff also took samples from the pool for laboratory analysis. Laboratory results, received August 8, 2018, are listed below:

Parameter	Result	Benchmark
E. coli	ND	235 CFU/100 mL
Ammonia	0.17 mg/L	0.5 mg/L
Chlorine	17.9 mg/L	0.02 mg/L
Surfactants (MBAS)	0.282 mg/L	0.25 mg/L

Staff also investigated the MS4 outfall downstream from the catch basin (outfall ID: TBB-1) on August 2, 2018 and found no flow.

Town staff revisited the catch basin on August 9, 2018 and noted a decreased chlorine odor. The pipe was not flowing, so a chlorine sample was taken from the sump pool and had an in-situ concentration of 0.2 mg/L.

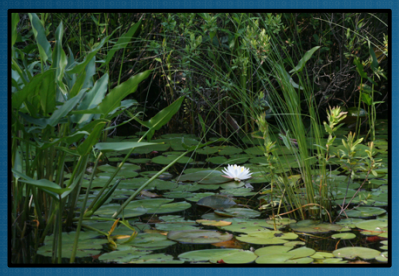
An enforcement letter was mailed to the owners of 32 Lochslea Road on September 27, 2018 informing them of the unauthorized discharge, and asking for identification of the source of the one-inch pipe in the catch basin if known. On October 4, 2018, the owners notified the Town that 32 Lochslea Road is a rental property. The owners informed the renter that the sump pump on the property is only to be used to pump uncontaminated groundwater.

Additional documentation is available from the Littleton Director of Public Works upon request.

Permit Year 1 Outfall and Interconnection Inventory and Initial Ranking

The Outfall and Interconnection Inventory and Initial Ranking, including the Outfall Investigation Screening Summary is available electronically in the Littleton Department of Public Work's record keeping files.

Littleton 2018 Results
Surface Water Quality Monitoring



Sampling Team:
Corey Godfrey
Ann Bousquet
Devin Resnik

Dec-2018

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Introduction

MassDEP has 2016 data showing surface water quality impairments in some Littleton streams and ponds. Our goal this year was to continue last year's water quality work by collecting data for some of these named impaired sites to verify MassDEP's water quality assessments.

- The Littleton Clean Lakes Committee sponsored 14 stream sites, 2 in Westford, for this year's study of water quality. Data for invasive species, aquatic plants and algae are not part of this study.
- A written study protocol was prepared and approved. Quality control procedures were defined and followed as part of the protocol.
- Original source data, lab reports, and tabular data used to create graphs shown in this report are archived at the Littleton Water Department.

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Known Impairments

Reported Littleton impairments from "Massachusetts Year 2016 Integrated List of Waters":

- **Bennett's Brook (from Harvard to Spectacle Pond):** e. Coli
- **Spectacle Pond**: Dissolved oxygen, *Invasive species*
- **Forge Pond:** *Invasive species, Mercury in fish tissue*
- **Reedy Meadow Brook**: Fecal coliform
- **Mill Pond (north and south basin)**: *Aquatic plants*
- **Beaver Brook (Littleton outlet of Mill Pond)**: Dissolved oxygen, low pH, Total suspended solids, Fecal coliform
- **Long Pond**: Dissolved oxygen, Total phosphorus, *Excess algae counts*
- **Stony Brook**: *Aquatic macro invertebrates*, Fecal coliform, Turbidity

Of these, Bennett's Brook, Forge Pond and Stony Brook are new to this list for us. All others were also cited in the equivalent 2014 report. Note that impairments shown in gray italics are for issues not evaluated by this year's water quality study.

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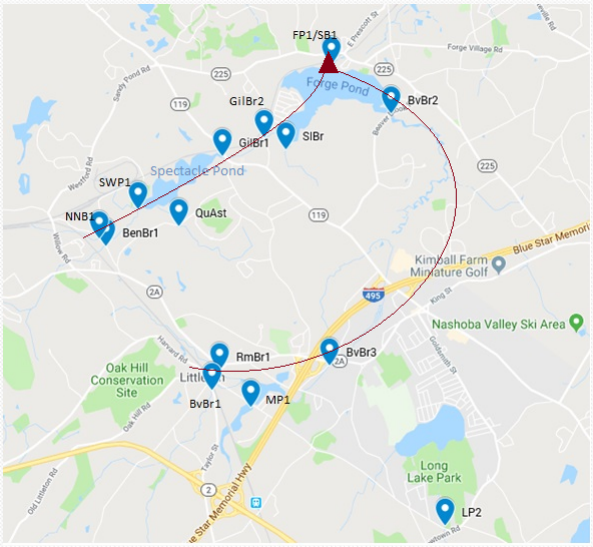
Study Design: 14 Stream Sites Sampled



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Study Design: Sampling Sites

SWP1	Swamp Pond culvert to Bennett's Brook near Ayer Pump Station
BenBr1	Near auto unloading facility and Stoneyard, Southwest (inlet) side of Bennett's Brook, before it crosses under emergency access rd
GilBr1	Culverts of Spectacle Pond, near outlet at base of boat launch
GilBr2	27-29 Gilson Road, inlet to Lake Matawanakee/Forge Pond from Spectacle Pond
RmBr1	Reedy Meadow under Kimball Street, near 25 King Street and the Littleton Animal Hospital
BvBr1	27-29 Taylor St, near Harwood Station post office
BvBr2	37 Beaver Brook Road, Westford, near Forge Pond Inlet
MP1	Mill Pond culvert under Harwood Avenue causeway, inlet side
QuAst	68 Spectacle Pond Rd, stream through culverts from Aggregate quarry to Spec Pond
SlBr	Slick Brook off Blood Road - inlet to Matawanakee/Forge Pond
FP1/SB1	Forge Pond outlet into Stony Brook near public beach and through Abbott Mill Works
BvBr3	Beaver Brook off 2A and Warren St near small LELWD facility, just south of where the brook forks as it flows north
NNB1	No Name Brook inlet to Spec Pond near BenBr1
LP2	Long pond outlet under Harwood Ave, near Long Lake Park as it flows towards Fort Pond

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Study Design: Measured Variables

Hanna Meter

- Dissolved Oxygen
- Water Temperature
- Atmospheric Pressure
- pH
- Conductivity

Wet Chemistry, evaluated at Nashoba Analytical LLC in Ayer MA

- Fecal Coliform
- Nitrite, Nitrate, TKN (summed to get total Nitrogen)
- Total Phosphorus
- Total Suspended Solids

Other

- Daily temperatures and precipitation are available for each sampling date as part of monthly data, compliments of Larry Mack in Westford.

Note: Any reported value of "ND" (none detected) in this report is graphed as a value of 0 for ease of presentation, just meaning that the reported value is below the level of detection but not necessarily "0".

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Class B Acceptable Limits

Parameter	Desirable/Expected Value or Range
Conductivity	Not Specified
Dissolved Oxygen	>6.0 mg/l cold water fishery >5.0 mg/l warm water fishery >2.0 mg/l - hypoxic (most fish cannot survive below this)
Fecal Coliform	Stream: <126 colonies/100ml
Nitrate - Total as N (TN)	<10.0 mg/l
Nitrite as N	<1.0 mg/l
pH at 25°C	Stream: 6.5 - 8.3 Pond: 6.5 – 9.0
Phosphorous-Total as P (TP)	<0.1mg/l
Total Dissolved Solids (TDS)	<500 mg/l
Total Suspended Solids	0
Temperature	68°F (20°C)
Turbidity	0

Sources:
EPA Nutrient Ecoregion 14, subregion 59
http://www.mass.gov/eea/docs/dep/service/regulations/314cmr04.pdf, 2013 Class B Inland Water (page 11 - 12)
https://www3.epa.gov/region9/water/drinking/files/dwshat-v09.pdf (page 13 - 14)
http://www.premierwatermn.com/water-quality/water-contaminants/total-dissolved-solids/
https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals

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Study Design: When and How we Sampled

- Data was collected monthly toward the end of each of 5 months from May through September (September data was actually collected on Oct 1)
- Three bottles of water (one plain, one sterile, one with preservative) were collected from each site and submitted to Nashoba Analytical LLC in Ayer for analysis of fecal coliform, Nitrogen, Phosphorus, and total suspended solids (TSS). Blinded negatives and a randomly selected site duplicate were also submitted for each sample date for quality assurance purposes.
- A Hanna meter fitted with a 14’ cable and probes for pH, dissolved oxygen, and conductivity was deployed at each sample site. This meter also recorded water temperature and atmospheric pressure. The probe was calibrated within 24 hours of the start of each collection, usually on the morning of a sampling day.

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Protocol Deviations

- No unrecoverable deviations occurred from our defined study plan.
- The Hanna meter probe that records turbidity and conductivity malfunctioned on the May sampling date, affecting absolute DO readings so in May, absolute DO was calculated for some sites from %DO. We obtained a new conductivity probe and since turbidity was generally less than reliable even with a functioning probe, we chose to drop turbidity and use only TSS. In May a Hach PocketPro Multi 2 meter was used to record water temperature and conductivity.
- Nashoba Analyical LLC inconsistently used >400, >600 and >1200 as an upper limit for reported fecal coliform values. Consequently we recorded >400 for each of those for graphing consistency. They used a value of <4 and sometimes <10 for lower limits of fecal coliform.
- In July, some conductivity records were misrecorded in the field. The Hanna meter log was used to confirm and adjust to the correct values.
- Saving the Hanna meter log was occasionally overlooked for some sites on some dates but it was not generally needed to verify values. The manual recordings were legible and complete.

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Quality Control Results

Negative controls - Fecal coliform was measured at 4 and TKN at 0.109 in Aug. In that month, we used commercial distilled water from the LWD supply rather than the Hanna deionized water. Both should have been 0.

Parameter	May	June	July	Aug	Sep
Fecal Coliform	0	ND	<10	4	<4
Nitrite	ND	ND	ND	ND	ND
Nitrate	ND	ND	ND	ND	ND
TKN	ND	ND	ND	0.109	ND
Total P	ND	ND	ND	ND	ND
TSS	ND	ND	ND	ND	ND

Positive controls - Values are expressed as *% Difference* between duplicate and primary samples for all but fecal coliform. where *Relative Percent Difference (RPD)* of $\log_{10}$ transformed data was used.

Parameter	May (FP1)	June (SIBr1)	Jul (NNB1)	Aug (SWP1)	Sep (LP2)
Fecal Coliform	35.4	0.0	17.7	2.3	1.3
Nitrite	0.0	0.0	0.0	0.0	0.0
Nitrate	0.0	1.7	0.0	0.0	0.0
TKN	4.7	100.0	44.3	12.2	14.1
Total P	0.0	0.0	0.0	0.0	0.0
TSS	50.0	50.0	100.0	11.1	25.0

Based on the guidance in Table 7.1 of the EPA's *Data Quality Objectives for RPD* document, comparisons for overall precision between field samples that showed under 30% difference is acceptable for TKN, Nitrates and Nitrites. For total P and TSS, less than 20% is acceptable. We had two dates with questionable TKN values. For a biologic parameter like fecal coliform, the formula is more complicated and is based on $\log_{10}$ tranformed data to account for total counted colonies in the sample. Less than 10% is generally acceptable unless you have greater than 5000 colonies. We had two questionable months.

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Atmospheric Conditions

Sampling Day				Prev 3 Days		
Date	General Weather	Air Temperature (Low/High)	Precipitation (inches)	General 3-day weather	Air temperature (Low/High)	Total Precipitation (inches)
17-May-2018	Overcast	51/79	0	Mixed	43/88	0.47
21-Jun-2018	Partly sunny	54/83	0.03	Mostly clear	51/93	0.05
24-Jul-2018	Overcast, rain	70/90	Trace	Rain	63/90	0.68
28-Aug-2018	Clear	68/96	0	Clear	66/97	0
1-Oct-2018	Overcast	49/60	0.08	Sunny	41/69	0.08

Air temperature data is reported in ºF and shows the low/high values for the time period being reporte but not necessarily the air temperature at the time actual water sampling was done. Data is from Westford, an adjacent town, compliments of Larry Mack.

Our July sampling day was wet as were all three days before it. Otherwise sampling days were clear or overcast but not rainy, although May was wet within the three days before the sampling date.

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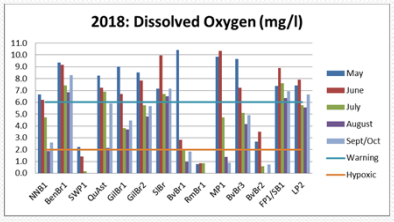
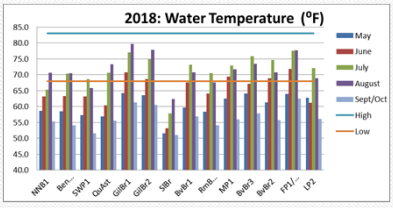
Dissolved Oxygen and Temperature

Larger number shows healthier water.

Want temps to be between the Max and Min lines, but this is really only interesting because DO is generally higher at lower temps.



Dissolved oxygen target is the cold water fisheries average



Min and Max bracket the desirable range

Meter measurements were taken at the lesser of ½ the depth of water in the stream. SWP1, BvBr1, BvBr2 and RmBr1 were consistently low.

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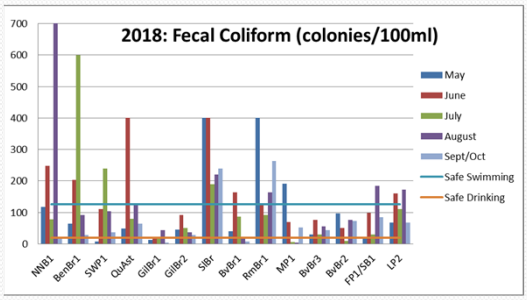
Fecal Coliform

Bacterial contamination is never good, so lower values are better.



Fecal Coliform was consistently elevated at three locations, NNB1, SlBr and RmBr1. BenBr1, SWP1, QuAst, and MP1 were also high occasionally. The SlBr inlet to Forge Pond/Matawanakee was particularly bad as were NNB1 and RmBr1 inlets to Spectacle Pond. Our July sampling day was wet as were all three days before it. Otherwise sampling days were clear or overcast but not rainy. May was wet within the three days before the sampling date. High values are expected after a rain but interesting to note, not all high values were recorded under those conditions.

Last year BenBr1, QuAst, RmBr1,and GilBr2 showed elevated values. Unlike last year, GilBr2 was not elevated this year. (We added NNB1 to the site list this year to get a more comprehensive profile of Spectacle Pond so have no year-to-year comparison for NNB1).

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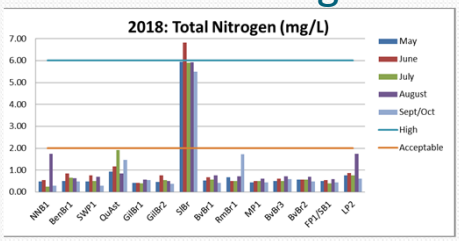
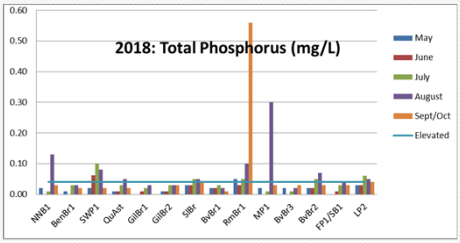
Total Phosphorus and Nitrogen

Lower is better.





Total nitrogen was acceptable, except at the SlBr1 site. As last year, RmBr1 and MP1 total phosphorus was elevated but unlike last year, BvrBr1 was not.

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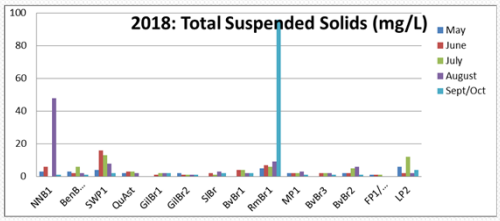
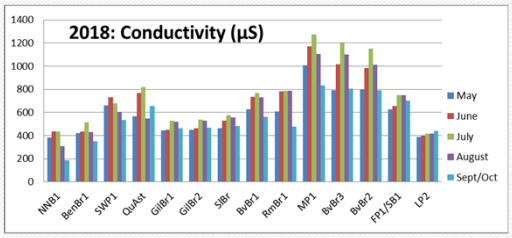
Total Suspended Solids and Conductivity

Lower values indicate clearer water.



Lower values indicate fewer dissolved salts.



The Reedy Meadow site (RmBr1) showed substantially elevated total suspended solids on one occasion late in the year. The two inlets to Spectacle Pond, NNB1 and SWP1,also showed very mildly elevated TSS.
The Beaver Brook drainage area showed higher conductivity than did the Bennett's Brook drainage area.

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Summary

The Good News

- Most sites showed few problems
- Our results showed fewer water quality issues than MassDEP's 2014 report water quality assessments indicated, and most of our sites were better than last year.

The Bad News

- Several sites showed consistently lower Dissolved Oxygen than desired, particularly SWP1 (inlet to Spectacle Pond) as well as both BvBr1 and RmBr1 (inlets to Mill Pond).
- Elevated fecal coliform was found on more than one occasion at several sites: NNB1, QuAst and SWP1 (inlets to Spec Pond) , SlBr1 inlet to Forge Pond/Matawanakee and RmBr1 upstream from Mill Pond. LP2, downstream from Long Pond, was also slightly elevated on two occasions. Values of 400 and higher were recorded.

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Summary (cont'd)

More Bad News

- SlBr had consistently elevated Nitrogen
- NNB1, SWP1, RmBr1 and MP1 showed elevated Phosphorus with RmBr1 and MP1 being particularly bad on one occasion each.
- TSS was much higher than expected at NNB1 and RmBr1 on one occasion each.
- BvBr1 was more acidic than desired.

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Conclusions

- Again this year we confirmed that certain sites in town have water quality issues that could be improved although the sites with issues identified this year are not exactly the same ones identified in previous years.
- Continuing water quality studies with cross-year analysis are needed to assess trends and to develop remediation efforts.
- As a town we need to broaden our water quality investigations and monitoring, perhaps focusing more heavily on different surface water bodies in town while continuing to assess problem sites.
- Reaching out to neighboring towns to try to synchronize efforts, share data, share knowledge, and otherwise collaborate could benefit all of us.

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Permit Year 2 Annual Report

Year 2 Annual Report
Massachusetts Small MS4 General Permit
Reporting Period: July 1, 2019-June 30, 2020

Please DO NOT attach any documents to this form. Instead, attach all requested documents to an email when submitting the form

Unless otherwise noted, all fields are required to be filled out. If a field is left blank, it will be assumed the requirement or task has not been completed. Please ONLY report on activities between July 1, 2019 and June 30, 2020 unless otherwise requested.

Part I: Contact Information

Name of Municipality or Organization: Town of Littleton

EPA NPDES Permit Number: MA041204

Primary MS4 Program Manager Contact Information

Name: Chris Stoddard, P.E. Title: Director of Public Works

Street Address Line 1: 39 Ayer Road

Street Address Line 2:

City: Littleton State: MA Zip Code: 01460

Email: cstoddard@littletonma.org Phone Number: (978) 540-2670

Stormwater Management Program (SWMP) Information

SWMP Location (web address): https://www.littletonma.org/stormwater

Date SWMP was Last Updated: September 2020

If the SWMP is not available on the web please provide the physical address:

Part II: Self-Assessment

First, in the box below, select the impairment(s) and/or TMDL(s) that are applicable to your MS4. Make sure you are referring to the most recent EPA approved Section 303(d) Impaired Waters List which can be found here: https://www.epa.gov/tmdl/region-1-impaired-waters-and-303d-lists-state

Impairment(s)

☒ Bacteria/Pathogens ☐ Chloride ☐ Nitrogen ☒ Phosphorus
☒ Solids/ Oil/ Grease (Hydrocarbons)/ Metals

TMDL(s)

In State: ☒ Assabet River Phosphorus ☐ Bacteria and Pathogen ☐ Cape Cod Nitrogen
☐ Charles River Watershed Phosphorus ☐ Lake and Pond Phosphorus

Out of State: ☐ Bacteria/Pathogens ☐ Metals ☐ Nitrogen ☐ Phosphorus

Clear Impairments and TMDLs

Next, check off all requirements below that have been completed. ***By checking each box you are certifying that you have completed that permit requirement fully.*** *If you have not completed a requirement leave the box unchecked. Additional information will be requested in later sections.*

Year 2 Requirements

- ☒ Completed Phase I of system mapping
- ☒ Developed a written catchment investigation procedure and added the procedure to the SWMP
- ☒ Developed written procedures to require the submission of as-built drawings and ensure the long term operation and maintenance of completed construction sites and added these procedures to the SWMP
- ☒ Enclosed or covered storage piles of salt or piles containing salt used for deicing or other purposes
- ☒ Developed written operations and maintenance procedures for parks and open space, buildings and facilities, and vehicles and equipment and added these procedures to the SWMP
- ☒ Developed an inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment and added this inventory to the SWMP
- ☒ Completed a written program for MS4 infrastructure maintenance to reduce the discharge of pollutants
- ☐ Developed written SWPPPs, included in the SWMP, for all of the following permittee owned or operated facilities: maintenance garages, public works yards, transfer stations, and other waste handling facilities where pollutants are exposed to stormwater

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Due to COVID-19 safety concerns our site inspection for the Transfer Station was delayed and performed on June 10th, 2020. The Highway Department/LEWLD Facility SWPPP has been prepared and implementation will begin in Permit Year 3. Final review and certification for the transfer station SWPPP is planned for

Permit Year 3.

Annual Requirements

- ☒ Provided an opportunity for public participation in review and implementation of SWMP and complied with State Public Notice requirements
- ☒ Kept records relating to the permit available for 5 years and made available to the public
- ☒ The SSO inventory has been updated, including the status of mitigation and corrective measures implemented
  - ○ This is not applicable because we do not have sanitary sewer
  - ◉ This is not applicable because we did not find any new SSOs
  - ○ The updated SSO inventory is attached to the email submission
  - ○ The updated SSO inventory can be found at the following website:
- ☒ Properly stored and disposed of catch basin cleanings and street sweepings so they did not discharge to receiving waters
- ☐ Provided training to employees involved in IDDE program within the reporting period
- ☒ All curbed roadways were swept at least once within the reporting period
- ☒ Updated outfall and interconnection inventory and priority ranking as needed

Optional: If you would like to describe progress made on any incomplete requirements listed above, provide any additional information, and/or if any of the above annual requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

Due to COVID-19 restrictions, the IDDE Training scheduled for Permit Year 2 had to be redesigned and recorded to be accessed on-demand in small groups without the trainer present. Training did not occur until September 2020 (4 Highway Department employees were trained).

Bacteria/ Pathogens (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

- ☒ Annual message was distributed encouraging the proper management of pet waste, including noting any existing ordinances where appropriate
- ☐ Permittee or its agents disseminated educational material to dog owners at the time of issuance or renewal of dog license, or other appropriate time
- ☒ Provided information to owners of septic systems about proper maintenance in any catchment that discharges to a water body impaired for bacteria

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Pet waste information was not given directly to dog owners but the Town does provide pet waste educational

materials to all Town residents through a link on the Town's Stormwater website to Northern Middlesex Stormwater Collaborative's webpage. LELWD also provided a video, on it's website, from Northern Middlesex Stormwater Collaborative educating residents about stormwater runoff and pet waste stormwater pollution.

Phosphorus (Combination of Impaired Waters Requirements and TMDL Requirements as Applicable)

Annual Requirements

*Public Education and Outreach**

☒ Distributed an annual message in the spring (April/May) encouraging the proper use and disposal of grass clippings and encouraging the proper use of slow-release and phosphorus-free fertilizers

☒ Distributed an annual message in the summer (June/July) encouraging the proper management of pet waste, including noting any existing ordinances where appropriate

☒ Distributed an annual message in the fall (August/September/October) encouraging the proper disposal of leaf litter

** Public education messages can be combined with other public education requirements as applicable (see Appendix H and F for more information)*

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

☒ Increased street sweeping frequency of all municipal owned streets and parking lots subject to Permit part 2.3.7.a.iii.(c) to a minimum of two times per year (spring and fall)

Potential structural BMPs

☐ Any structural BMPs already existing or installed in the regulated area by the permittee or its agents was tracked and the phosphorus removal by the BMP was estimated consistent with Attachment 3 to Appendix F. The BMP type, total area treated by the BMP, the design storage volume of the BMP and the estimated phosphorus removed in mass per year by the BMP were documented.

- ○ The BMP information is attached to the email submission
- ○ The BMP information can be found at the following website:

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Phosphorus Potential Structural BMPs: The town has mapped 88 structural BMPs within the regulated area as part of Phase I mapping efforts. Since mapping of BMPs was due in Permit Year 2, BMPs were not tracked or estimated for phosphorus removal. This information will be documented for the municipal BMPs in Permit Year 3.

Solids, Oil and Grease (Hydrocarbons), or Metals

Annual Requirements

Good Housekeeping and Pollution Prevention for Permittee Owned Operations

☒ Increased street sweeping frequency of all municipal owned streets and parking lots to a schedule that targets areas with potential for high pollutant loads

☒ Prioritized inspection and maintenance for catch basins to ensure that no sump shall be more than 50 percent full; Cleaned catch basins more frequently if inspection and maintenance activities indicated excessive sediment or debris loadings

Optional: If you would like to describe progress made on any incomplete requirements listed above or provide any additional details, please use the box below:

Optional: Use the box below to provide any additional information you would like to share as part of your self-assessment:

Part III: Receiving Waters/Impaired Waters/TMDL

Have you made any changes to your lists of receiving waters, outfalls, or impairments since the NOI was submitted?

- (•) Yes
- ( ) No

If yes, describe below, including any relevant impairments or TMDLs:

Littleton's NOI listed receiving waters based on the water quality limited waters within the Town's urbanized area that were included in the 2014 303(d) List. The Town has evaluated changes to the impairments and/or receiving waters based on the final 2016 303(d) List and enclosed the analysis herein. The enclosed document will be included in the Town's SWMP.

During Permit Year 2 the Town modified its outfall mapping by removing one outfall that was identified as outside the Town's regulated area. These modifications did not add or change any receiving waterbodies or impairments/TMDLs listed in the NOI.

Part IV: Minimum Control Measures

Please fill out all of the metrics below. If applicable, include in the description who completed the task if completed by a third party.

MCM1: Public Education

Number of educational messages completed **during this reporting period**: 6

*Below, report on the educational messages completed **during this reporting period**. For the measurable goal(s) please describe the method/measures used to assess the overall effectiveness of the educational program.*

BMP:Education and Outreach to Residents, Businesses Institutions, Commercial Facilities (website)

Message Description and Distribution Method:

1. The Town has a stormwater webpage that includes links to the Town's SWMP, stormwater reports, stormwater presentations, and bylaws and regulations for the public to access. There are also links describing the effects of fertilizer use on waterbodies and lawn care techniques (handling grass clippings, using less fertilizer and conserving water.)

2. The Littleton Stormwater webpage includes a link to the Northern Middlesex Stormwater Collaborative (NMSC) website, which provides educational information for residents about stormwater and how they can reduce their contributions to polluting stormwater runoff, proper lawn care and use of fertilizers, how to properly dispose of yard waste (such as leaves and grass clippings), use of phosphate free/biodegradable soaps to wash cars, proper care of septic systems, and properly managing pet waste.

3. The Town shared a photo about fertilizer use from the Think Blue Massachusetts educational advertisement campaign on Facebook. The Town posted a link to a PDF on the Littleton Stormwater webpage about lawn care too. This PDF includes info about uses for grass clippings, mowing techniques, fertilizer application, and water conservation.

4. The Littleton Electric Light & Water Department (LELWD) posted a video on its website by the NMSC to educate the public about stormwater runoff such as fuel, paint, pesticides, cleaning agents, pet waste, care washing, and septic system management. The LELWD website also includes a link to Littleton's Low Impact Design/Best Management Practices Manual.

Targeted Audience: Residents, Businesses, Institutions, Commercial Facilities

Responsible Department/Parties: Highway Department, Littleton Electric and Light Water Department

Measurable Goal(s):

Messaging is available to all services of the Stormwater, Facebook, and LELWD webpages. The Think Blue MA Facebook post received 1 comment, 2 shares, and 8 likes. In this reporting period the Littleton Stormwater Webpage had a total of 215 page views.

Message Date(s): The Think Blue MA advertisement was posted on June 30, 2020. All others ongoing.

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP:Resident Message - Stormwater pollution is trash, oil, cigarette butts, & dog waste.

Message Description and Distribution Method:

Think Blue Massachusetts "Fowl Water" video (https://www.thinkbluemassachusetts.org/) Advertisement on Facebook & YouTube.

Targeted Audience: Residents

Responsible Department/Parties: Massachusetts Statewide Municipal Stormwater Coalition

Measurable Goal(s):

25,886 social media impressions from residents of Littleton over 1.2 Million within Northern Middlesex Stormwater Collaborative region, and over 7 Million impressions across Massachusetts

Message Date(s): July 2019

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

BMP: Residents Message - SuAsCo Stormwater Brochures

Message Description and Distribution Method:

Brochures from the SuAsCo “Stormwater Matters” public awareness campaign were provided to the public at Conservation Commission meetings and outside the Conservation office. This included topics such as: What is stormwater, storm drains, litter, lawn care, pet waste, car care, and low impact development.

Targeted Audience: Residents

Responsible Department/Parties: Conservation Committee

Measurable Goal(s):

The brochures are available to all Conservation Commission visitors.

Message Date(s): Ongoing

Message Completed for: Appendix F Requirements ☒ Appendix H Requirements ☒

Was this message different than what was proposed in your NOI? Yes ○ No ◉

If yes, describe why the change was made:

Add an Educational Message

MCM2: Public Participation

Describe the opportunity provided for public involvement in the development of the Stormwater Management Program (SWMP) **during this reporting period**:

The Stormwater Management Plan (SWMP) was posted for ongoing public review and input on the Town's website with instructions on how the public can provide comments or input on the plan.

Was this opportunity different than what was proposed in your NOI? Yes ○ No ◉

Describe any other public involvement or participation opportunities conducted **during this reporting period**:

Littleton's Annual Community Cleanup Day was canceled due to COVID-19 restrictions. Littleton Park, Recreation, and Community Education sent out Earth Day ideas for residents to do on their own. The Clean Lakes Committee is still holding meetings but no new water quality report is available.

MCM3: Illicit Discharge Detection and Elimination (IDDE)

Sanitary Sewer Overflows (SSOs)

Check off the box below if the statement is true.

☐ This SSO section is NOT applicable because we DO NOT have sanitary sewer

*Below, report on the number of SSOs identified in the MS4 system and removed **during this reporting period**.*

Number of SSOs identified: 0

Number of SSOs removed: 0

MS4 System Mapping

Below, check all that apply.

The following elements of the Phase I map have been completed:

☒ Outfalls and receiving waters

☒ Open channel conveyances
☒ Interconnections
☒ Municipally-owned stormwater treatment structures
☒ Waterbodies identified by name and indication of all use impairments
☒ Initial catchment delineations

Optional: Describe any additional progress you made on your map during this reporting period or provide additional status information regarding your map:

Screening of Outfalls/Interconnections

If conducted, please submit any outfall monitoring results from this reporting period. Outfall monitoring results should include the date, outfall/interconnection identifier, location, weather conditions at time of sampling, precipitation in previous 48 hours, field screening parameter results, and results from all analyses.

○ The outfall screening data is attached to the email submission
◉ The outfall screening data can be found at the following website:

https://www.littletonma.org/stormwater/pages/idde-field-work

Below, report on the number of outfalls/interconnections screened ***during this reporting period****.*

Number of outfalls screened: 0

Catchment Investigations

If conducted, please submit all data collected during this reporting period as part of the dry and wet weather investigations. Also include the presence or absence of System Vulnerability Factors for each catchment.

○ The catchment investigation data is attached to the email submission
◉ The catchment investigation data can be found at the following website:

N/A

Below, report on the number of catchment investigations completed ***during this reporting period****.*

Number of catchment investigations completed this reporting period: 0

Below, report on the percent of catchments investigated ***to date.***

Percent of total catchments investigated: 0

Optional: Provide any additional information for clarity regarding the catchment investigations below:

No catchment investigations were completed in Permit Year 2 because the Town has not identified any problem catchments.

IDDE Progress

If illicit discharges were found, please submit a document describing work conducted over this reporting period, and cumulative to date, including location source; description of the discharge; method of discovery; date of discovery; and date of elimination, mitigation, or enforcement OR planned corrective measures and schedule of removal.

- ○ The illicit discharge removal report is attached to the email submission
- ◉ The illicit discharge removal report can be found at the following website:

N/A

*Below, report on the number of illicit discharges identified and removed, along with the volume of sewage removed **during this reporting period.***

Number of illicit discharges identified: 0

Number of illicit discharges removed: 0

Estimated volume of sewage removed: 0 gallons/day

*Below, report on the total number of illicit discharges identified and removed to date. At a minimum, report on the number of illicit discharges identified and removed **since the effective date of the permit (July 1, 2018)**.*

Total number of illicit discharges identified: 1

Total number of illicit discharges removed: 1

Optional: Provide any additional information for clarity regarding illicit discharges identified, removed, or planned to be removed below:

Employee Training

Describe the frequency and type of employee training conducted **during the reporting period**:

Due to COVID-19 restrictions, the IDDE Training scheduled for Permit Year 2 had to be redesigned and recorded to be accessed on-demand in small groups without the trainer present. Training did not occur until September 2020 (4 Highway Department employees were trained).

MCM4: Construction Site Stormwater Runoff Control

*Below, report on the construction site plan reviews, inspections, and enforcement actions completed **during this reporting period**.*

Number of site plan reviews completed: 3

Number of inspections completed: 26

Number of enforcement actions taken: 4

Optional: Enter any additional information relevant to construction site plan reviews, inspections, and enforcement actions:

Planning Board performed 3 site plan reviews during Permit Year 2 for sites with 1 acre or more disturbance. Approximately 14 inspections were completed by a third party for seven subdivisions under construction in Town and 12 were completed by Conservation Commission. During the permit term, 4 enforcement orders were issued for Wetlands Protection Act violations.

MCM5: Post-Construction Stormwater Management in New Development and Redevelopment

Ordinance or Regulatory Mechanism

Below, select the option that describes your ordinance or regulatory mechanism progress.

- ○ Bylaw, ordinance, or regulations are updated and adopted consistent with permit requirements
- ◉ Bylaw, ordinance, or regulations are updated consistent with permit requirements but are not yet adopted
- ○ Bylaw, ordinance, or regulations have not been updated or adopted

As-built Drawings

Describe the measures the MS4 has utilized to require the submission of as-built drawings and ensure long term operation and maintenance of completed construction sites:

The requirement of submission of as-built drawings has been met through the adoption of Chapter 38 Section 19 of the Town's General Bylaws, Stormwater Management and Erosion Control, required the submission of as-builts and long-term operation and maintenance of completed construction sites.

Street Design and Parking Lots Report

Describe the status of the street design and parking lots assessment due in year 4 of the permit term, including any planned or completed changes to local regulations and guidelines:

Preparation for the Street Design and Parking Lots has not yet begun as this requirement is due in Permit Year 4.

Green Infrastructure Report

Describe the status of the green infrastructure report due in year 4 of the permit term, including the findings and progress towards making the practice allowable:

Preparation for the Green Infrastructure Report has not yet begun as this requirement is due in Permit Year 4.

Retrofit Properties Inventory

Describe the status of the inventory, due in year 4 of the permit term, of permittee-owned properties that could be modified or retrofitted with BMPs to mitigate impervious areas and report on any properties that have been modified or retrofitted:

Preparation for the Retrofit Properties Inventory has not yet begun as this requirement is due in Permit Year 4.

MCM6: Good Housekeeping

Catch Basin Cleaning

*Below, report on the number of catch basins inspected and cleaned, along with the total volume of material removed from the catch basins **during this reporting period**.*

Number of catch basins inspected: 1,385

Number of catch basins cleaned: 1,385

Total volume or mass of material removed from all catch basins: 100 cubic yards

Below, report on the total number of catch basins in the MS4 system.

Total number of catch basins: 1,572

If applicable:

Report on the actions taken if a catch basin sump is more than 50% full during two consecutive routine inspections/cleaning events:

Due to using only salt for deicing during the winter, the Town does not experience excessive sediment buildup in catch basins. However, if there is excessive sediment loading in a specific area, the Town will target those areas on an as-needed basis.

Street Sweeping

*Report on street sweeping completed **during this reporting period** using one of the three metrics below.*

- (●) Number of miles cleaned: 82.2
- ( ) Volume of material removed: [Select Units]
- ( ) Weight of material removed: [Select Units]

O&M Procedures and Inventory of Permittee-Owned Properties

Below, check all that apply.
The following permittee-owned properties have been inventoried:

- ☒ Parks and open spaces
- ☒ Buildings and facilities
- ☒ Vehicles and equipment

The following O&M procedures for permittee-owned properties have been completed:

- ☒ Parks and open spaces
- ☒ Buildings and facilities
- ☒ Vehicles and equipment

Stormwater Pollution Prevention Plan (SWPPP)
Below, report on the number of site inspections for facilities that require a SWPPP completed ***during this reporting period****.*

Number of site inspections completed: 1

Describe any corrective actions taken at a facility with a SWPPP:

N/A

Additional Information

Monitoring or Study Results
Results from any other stormwater or receiving water quality monitoring or studies conducted during the reporting period not otherwise mentioned above, where the data is being used to inform permit compliance or permit effectiveness must be attached.

- ◉ Not applicable
- ○ The results from additional reports or studies are attached to the email submission
- ○ The results from additional reports or studies can be found at the following website(s):

If such monitoring or studies were conducted on your behalf or if monitoring or studies conducted by other entities were reported to you, a brief description of the type of information gathered or received shall be described below:

Additional Information

Optional: Enter any additional information relevant to your stormwater management program implementation during the reporting period. Include any BMP modifications made by the MS4 if not already discussed above:

The Town's Stormwater Management Bylaw and Regulations adopted on August 11, 2016, fulfill part of the MCM 4 and MCM 5 Construction and Post-Construction Stormwater Management requirements. Due to the delay of the MassDEP Stormwater Handbook update, the Town's regulatory mechanism is currently being updated for consistency with the revised General Permit requirements. The Town participated in the Northern Middlesex Stormwater Collaborative (NMSC) "Capacity Building for Local Oversight of Development and Redevelopment Projects" project funded through a 2019-2020 MS4 Municipal Assistance Grant. Through this project, the Town plans to use the model Regulations to update the Planning Board Stormwater Management Regulations in Permit Year 3 to meet the revised post-construction requirements as well as the online Guidance and Mapping Tool for Watershed-Based Requirements.

The total number of MS4 catch basins was further refined from PY1 totals after additional ownership was obtained. The Town cleaned a majority of the catch basins in Permit Year 2. The remaining catch basins were completed by August 27, 2020 in the beginning of Permit Year 3.

Littleton has increased parking lot and street sweeping in the Assabet River Watershed to twice a year in the Fall and Spring.

The Town properly stores and disposes of catch basin cleanings and street sweepings by complying with MassDEP's Management of Catch Basin Cleanings and Reuse and Disposal of Street Sweepings #BAW-18-001.

COVID-19 Impacts

Optional: If any of the above year 2 requirements could not be completed due to the impacts of COVID-19, please identify the requirement that could not be completed, any actions taken to attempt to complete the requirement, and reason the requirement could not be completed below:

The Town planned an in person training for applicable staff on the IDDE Program during Permit Year 2 but was delayed because of COVID-19 safety concerns. Instead, Town staff completed a virtual IDDE refresher training program in September 2020.

Due to COVID-19 safety concerns our site inspection for the Transfer Station was delayed and performed on June 10th, 2020. The Highway Department/LEWLD Facility SWPPP has been prepared and implementation will begin in Permit Year 3. Final review and certification for the transfer station SWPPP is planned for Permit Year 3.

Activities Planned for Next Reporting Period

Please confirm that your SWMP has been, or will be, updated to comply with all applicable permit requirements including but not limited to the year 3 requirements summarized below. (Note: impaired waters and TMDL requirements are not listed below)

Yes, I agree ☒

- Inspect all outfalls/ interconnections (excluding Problem and Excluded outfalls) for the presence of dry weather flow
- Complete follow-up ranking as dry weather screening becomes available

Annual Requirements

- Annual report submitted and available to the public
- Annual opportunity for public participation in review and implementation of SWMP
- Keep records relating to the permit available for 5 years and make available to the public
- Properly store and dispose of catch basin cleanings and street sweepings so they do not discharge to receiving waters
- Annual training to employees involved in IDDE program
- Update inventory of all known locations where SSOs have discharged to the MS4
- Continue public education and outreach program
- Update outfall and interconnection inventory and priority ranking and include data collected in connection with the dry weather screening and other relevant inspections conducted
- Implement IDDE program
- Review site plans of construction sites as part of the construction stormwater runoff control program
- Conduct site inspection of construction sites as necessary
- Inspect and maintain stormwater treatment structures
- Log catch basins cleaned or inspected
- Sweep all uncurbed streets at least annually
- Continue investigations of catchments associated with Problem Outfalls
- Review inventory of all permittee owned facilities in the categories of parks and open space, buildings and facilities, and vehicles and equipment; update if necessary

Provide any additional details on activities planned for permit year 3 below:

The Town acknowledges the General Permit Year 3 requirements and will complete as many activities as possible based on funding and staff availability.

Part V: Certification of Small MS4 Annual Report 2020

40 CFR 144.32(d) Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name:	Chris Stoddard, P.E.	Title:	Director of Public Works
Signature:		Date:	9-25-2020

[Signatory may be a duly authorized representative]

Summary of Littleton's TMDLs and Impaired Waters [1, 2, 3]

Receiving Waterbody	2014 Category	2014 Water Quality Impairments	2016 Category	2016 Water Quality Impairments[5]	Applicable General Permit Section	Change to Permit Requirements
Spectacle Pond (MA84089)[4]	5	Non-Native Aquatic Plants Dissolved oxygen TSS	5	Non-Native Aquatic Plants Dissolved oxygen TSS		None
Beaver Brook (MA84B-02)	5	Dissolved Oxygen Fecal Coliform pH (low)	5	Dissolved Oxygen Fecal Coliform pH (low)	Appendix H, Section V - Solids Appendix H, Section III - Pathogens	None
Forge Pond (MA84015)	4a	Non-Native Aquatic Plants	4a	Non-Native Aquatic Plants		None
Mill Pond (MA84038)	5	Aquatic Plants (Macrophytes)	5	Aquatic Plants (Macrophytes)		None
Mill Pond (MA84081)	5	Aquatic Plants (Macrophytes)	5	Aquatic Plants (Macrophytes)		None
Beaver Brook (MA84B-05)	3		3			None
Nagog Pond (MA82082)	3		3			None
Fort Pond (MA82043)[4]	3		3			None
Fort Pond Brook (MA82B-13)	3		3			None
Unnamed Tributary (MA84B-01)	5	Fecal Coliform Dissolved Oxygen	5	Fecal Coliform Dissolved Oxygen	Appendix H, Section III - Pathogens	None
Long Pond (MA82072)	5	Excess Algal Growth Phosphorus, Total	5	Algae Phosphorus, Total	Appendix H, Section II - Phosphorus	None
Nashoba Brook (MA82B-14)[4]		Low flow alterations Fishes Bioassessments		Dewatering Fish Bioassessments E. Coli	See Footnote 2 and 4	None
Assabet River TMDL for Total Phosphorus					Appendix F, Section V - Assabet River Phosphorus TMDL	None

[1]TMDLs associated with major rivers may apply to additional waterbodies within the watershed.

[2]Any TMDL or impairments related to nutrients (nitrogen and phosphorus) apply to all receiving waterbodies within the watershed.

[3]Applicable impairments that have been renamed between 2014 and 2016 Integrated List of Waters include the following: Excess Algal Growth -> Algae, Low Flow Alterations -> Dewatering

[4]Waterbody does not receive direct discharge from the MS4. MS4 discharges to a tributary/wetland of the waterbody.

[5]Impairments in blue were added in the 2016 Integrated List of Waters.

Phase I MS4 System Map

PHASE I MAPPING

Summary of Littleton's TMDLs and Impaired Waters [1, 2, 3]

Tighe&Bond

Receiving Waterbody	2014 Category	2014 Water Quality Impairments	2016 Category	2016 Water Quality Impairments[5]	Applicable General Permit Section	Change to Permit Requirements
Spectacle Pond (MA84089)[4]	5	Non-Native Aquatic Plants Dissolved oxygen TSS	5	Non-Native Aquatic Plants Dissolved oxygen TSS		None
Beaver Brook (MA84B-02)	5	Dissolved Oxygen Fecal Coliform pH (low)	5	Dissolved Oxygen Fecal Coliform pH (low)	Appendix H, Section V - Solids Appendix H, Section III - Pathogens	None
Forge Pond (MA84015)	4a	Non-Native Aquatic Plants	4a	Non-Native Aquatic Plants		None
Mill Pond (MA84038)	5	Aquatic Plants (Macrophytes)	5	Aquatic Plants (Macrophytes)		None
Mill Pond (MA84081)	5	Aquatic Plants (Macrophytes)	5	Aquatic Plants (Macrophytes)		None
Beaver Brook (MA84B-05)	3		3			None
Nagog Pond (MA82082)	3		3			None
Fort Pond (MA82043)[4]	3		3			None
Fort Pond Brook (MA82B-13)	3		3			None
Unnamed Tributary (MA84B-01)	5	Fecal Coliform Dissolved Oxygen	5	Fecal Coliform Dissolved Oxygen	Appendix H, Section III - Pathogens	None
Long Pond (MA82072)	5	Excess Algal Growth Phosphorus, Total	5	Algae Phosphorus, Total Dewatering	Appendix H, Section II - Phosphorus	None
Nashoba Brook (MA82B-14)[4]	5	Low flow alterations Fishes Bioassessments	5	Fish Bioassessments E. Coli	See Footnote 2 and 4	None
Assabet River TMDL for Total Phosphorus					Appendix F, Section V - Assabet River Phosphorus TMDL	None

[1]TMDLs associated with major rivers may apply to additional waterbodies within the watershed.
[2]Any TMDL or impairments related to nutrients (nitrogen and phosphorus) apply to all receiving waterbodies within the watershed.
[3]Applicable impairments that have been renamed between 2014 and 2016 Integrated List of Waters include the following: Excess Algal Growth -> Algae, Low Flow Alterations -> Dewatering
[4]Waterbody does not receive direct discharge from the MS4. MS4 discharges to a tributary/wetland of the waterbody.
[5]Impairments in blue were added in the 2016 Integrated List of Waters.

LEGEND

- Outfall
- Interconnection
- Catch Basin
- Manhole
- BMP Point
- Drain Line
- Open Channel
- Culverts
- Outfall Catchments
- MassDEP Open Water
- MassDEP Inland Wetlands
- MassDEP Coastal Wetlands
- Stream/Intermittent Stream
- Public Surface Water Supply (PSWS)
- Water Bodies
- Town Boundary
- Urbanized Area 2010
- Urbanized Area 2000
- Limited Access Highway
- Other Numbered Highway
- Major Road - Collector
- Minor Street or Road

LOCUS MAP

1:18,000

0 750 1,500 3,000
Feet

NOTES

1. Data source: Bureau of Geographic Information (MassGIS) Commonwealth of Massachusetts, Executive Office of Technology and the town of Littleton MA.
Data valid as of September 2020.

Permit Year 2 Annual Report
Littleton, Massachusetts

September 2020

Tighe&Bond

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Appendix G

Plan Amendment Log

Amend. No.	Description of the Amendment	Date of Amendment	Amendment Prepared by (Name/Signature)
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Section 6
SWMP Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

A letter that authorizes the Town of Littleton Town Administrator and Director of the Department of Public Works to sign and certify certain documents prepared under the Small MS4 General Permit is included in Appendix H.

Appendix H

Delegation of Authority Documentation

September 23, 2019

Ms. Thelma Murphy
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100 (OEP06-1)
Boston, MA 02109-3912

Re: NPDES MA Small MS4 General Permit
Delegating an "Authorized Representative"

Dear Ms. Murphy:

This letter serves to designate the Town of Littleton **Town Administrator** as an authorized person for signing the Stormwater Management Plan (SWMP) and annual reports, and the Town of Littleton **Director of the Department of Public Works** as an authorized person for signing stormwater pollution prevention plans (SWPPPs), inspection reports, annual reports, monitoring reports, reports on training, and other information required under the General Permit. This authorization cannot be used for signing a NPDES permit application (e.g., Notice of Intent (NOI)) in accordance with 40 CFR 122.22.

By signing this authorization, I confirm that the Board of Selectmen meets the following requirements to make such a designation as set forth in Appendix B, Subparagraph 11 of the Small MS4 General Permit:

> *For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).*

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Sincerely,

Joseph Knox, Chair
Littleton Board of Selectmen